Textile World

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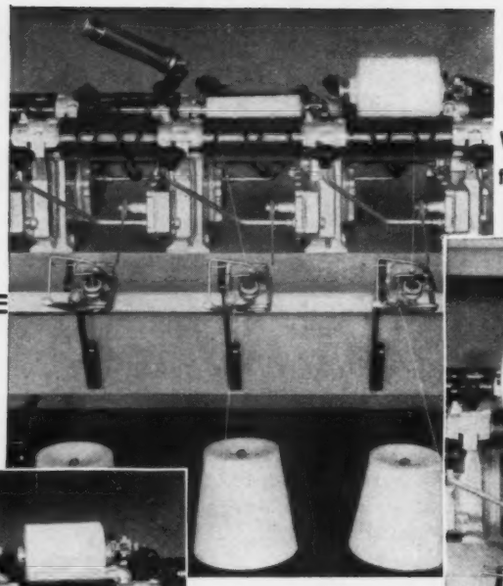

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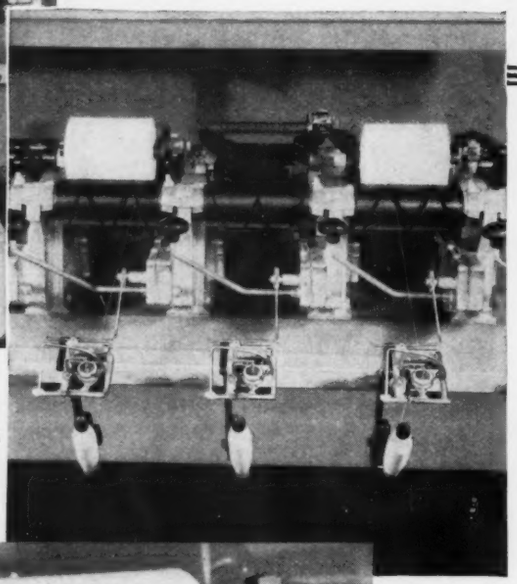

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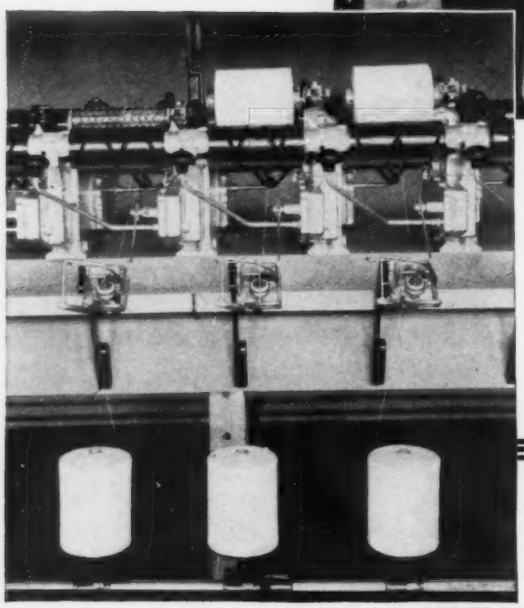

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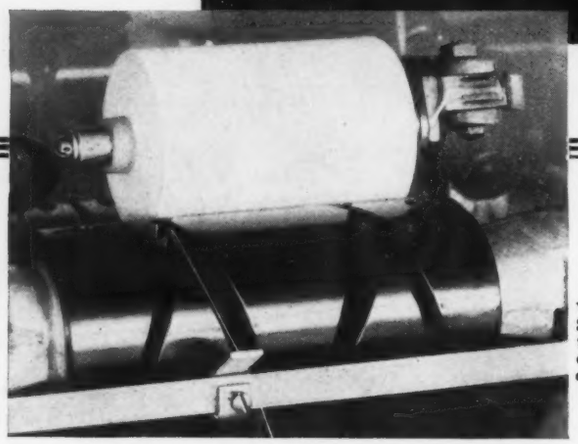

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Textile World

MARCH, 1939

DOUGLAS G. WOOLF, *Editor*

The South and the World

THIS issue of TEXTILE WORLD is planned to fit in with the 13th Southern Textile Exposition at Greenville, S. C. Its content includes a guide to exhibits at that show; a collected group of advertisements of many of the firms which will exhibit there; and a series of practical articles of particular interest to the mill-men who will visit Greenville.

But beneath these factual phases, this year, is a symbolism. The editors are convinced that the Greenville show is a manifestation of an ideal worth safeguarding in a world on the fringe of further insanity.

The mill-men who made the southern textile industry built it on the ashes of war and post-war devastation. They used as stilts the courage and will-power of their immediate ancestors. They profited, it is true, by the participation of capitalists and machinery manufacturers from other sections, but the main impetus came from the determination of the section itself to overcome the handicaps of poverty.

Those builders evidenced in their tortuous march to victory the qualities which have made this country unique in modern history. Today the industry they created stands in an impregnable position so far as its own future is concerned, if that future could stand alone.

•

But nothing stands alone today. The South, as the North, has a stake in a war-threatened world. Both sections know that civilization cannot stand the strain of another world war.

The South knows it more positively than any other section of the country. Its own near approach to extinction in the last third of the last century has convinced it that nations, or parts of nations, cannot endure recurring warfare.

And, yet such warfare is the prospect which the world faces today. Against that threat, a bulwark should be the experience of nations and of sections which, like the South, have come very close to what to them seemed the twilight of civilization.

A further potential protection lies in the deep conviction of thoughtful northerners that no one section of a country can long prosper while another section is destitute. They found that out.

Both the South and the North know that the United States cannot prosper if the rest of the world is at war. It might gain temporarily by sale of war necessities, but the descendants of those who fought in the war between the States, as well as the veterans of the world war, know too well that war profits are merely advance payments on human prostration.

There is no formula, of course, for keeping the world out of war. But it would seem that those who have suffered, by heritage or participation, from other wars, are the best qualified to raise their voices against the next and probably the final war so far as our present civilization is concerned.

•

That is why we devote this editorial page, at this year's show, not to a discussion of textile prospects but to a long sight into world prospects. For there is today no textile future which can be considered separately from the world outlook.

It will take the memory of the fortitude of those who have gone before us to guide the destiny of this nation, fortunate above all others, and to help us to influence the destinies of the less fortunate nations.

For the world is sick with a malady which started decades ago, and which is now finding its most malignant expression in the mouthings of a few men who feed, like vultures, on lost freedom and lost hopes.

This country is in a strategic position. By its own attitude during the next six months or year, it will help materially to swing the pendulum toward war or toward peace. Never before have wisdom, calm judgment, and above all unity, been more vital than at present. Men of the South and men of the North have before them the opportunity to lend their own strength, and the strength of their heritage, to the salvation of a world on the edge of a precipice.

THE EDITOR SAYS

How It Looks From Here

ON the surface, things look pretty good. General business trends are up, and the best dope is that they will continue that way until at least the middle of the year.

One of the principal bullish factors at present is the Government's so-called appeasement overtures toward business. Let's be honest and admit that this is largely political in character, and decidedly superficial and insincere. Nevertheless it has been having a psychological effect on the outlook.

Furthermore, there is one tangible phase of it: the demand for Government economy initiated by Senator Pat Harrison. This was forced on the Administration by the Senator and others, with the result that just about now members of the Cabinet are beginning to act as if this was their baby all the time. However, businessmen would be foolish to be too fussy about the parentage of a movement which may slacken the pace of the joy-ride in Washington and may even result in further revision of recovery-retarding tax structures.

As noted above, all this is on the favorable side.

Despite this fact, there is more uncertainty among some textile men today than for months. Why?

Tracing it down, we find that a good part of the pessimism is centered in one particular branch of the market: print cloths. And that branch is a strategic one; when it goes sour, its sentiment bears down other parts of the industry, whereas a boom in print cloths always has a stimulating effect elsewhere in textiles.

Well, what *is* wrong with print cloths? The raw cotton situation, first. Get some sort of an orderly solution of the Government stock problem started, and see how quickly sentiment will improve. And since that seems to be in the works, there is real hope here.

The second major factor in print cloths is price. Manufacturing margins have declined for months, despite greater consumption. TEXTILE WORLD'S compilation showed in February 1939 a margin of 13.6c. on a representative group of carded cotton fabrics, against 16.5c. in July, 1938. In view of what happened between those two dates, that decline just doesn't make sense.

The third major reason for uncertainty in print cloths is mill inventory. Granted that it has been allowed to accumulate, the lightness of inventories in distributors' hands, on the other hand—as indicated by the buying movement at the start of this month—is a definitely favorable factor.

Summing up for print cloths, we think the raw cotton situation is going to be helped by legislation at this session; we believe a little guts is the primary requisite in the price situation; and we don't believe the inventory problem quite justifies the Print Cloth Blues now being moaned, even though it is true some well-placed curtailment will be helpful.

For the textile industry as a whole, in fact, we see no reason to change our bullish *short-term* prediction in the Annual Number last month. Remember we said short-term; six months is our maximum star-gazing period right now.

P. S. Shortly after the above was written, sales of print cloths broadened and prices advanced. [Please note we are not claiming cause and effect.] Primary reasons for buying appeared to be realization that "something was going to be done about" the cotton situation by Congress, and expectation of help from curtailment . . . We hope the main reason for the price advances was the belated appearance of that quality "guts" previously mentioned . . . At any rate, there is a prospect that the market is recognizing the favorable factors referred to above.

The Stranger Case Of Harry Hopkins

WE thought the appointment of Harry Hopkins as Secretary of Commerce was strange. After listening to his Iowa speech, we think it stranger.

To this listener, Mr. Hopkins came over the air as a spokesman for an adversary of business; one which recognizes itself as such but which is now trying to conduct its fight within certain limits, in order to encourage the business world, and of course to sweeten the outlook for 1940.

"In making the peace (with the utilities), the Government demonstrated its good-will by settling on generous terms. It struck a peace that will be a lasting and good peace, because it is a generous peace," Hopkins declared.

Again: "We wish to be fair—we wish to be reasonable and we believe that with good-will on both sides we can accomplish our twin objectives. . . ."

Also: "I can say from personal knowledge that the Government is not, and never has been, opposed to business. It has no desire whatever to harass or punish business."

All we can say is that, when men who are presumed to be public servants, paid by the people to do their will, have to come out and boast about their "generosity," their desire to be "fair," and their indisposition to "punish," they are in a bad way.

The speech was, in our opinion, largely political bunk, phrased with an eye on 1940.

Both Act and Board Are on the Run

THE National Labor Relations Act was not only badly conceived; it has been badly administered. The combination is vile.

A great deal has been heard about revision of the Act. We believe and hope that is in the cards for this session.

But possibly not enough has been said about the part the Board has played, quite aside from the Act, toward discrediting this type of legislation.

The Supreme Court has now had something to say about that. Its three decisions on Feb. 27 sharply rebuked the Board for its procedure in several directions.

Our hunch is that the Board is just beginning to reap the results of its high-handed, arrogant, prejudiced conduct. It is impossible to feel sorry for its members. They are all intelligent men, and must have known that this country would not indefinitely tolerate the autocratic rule they had set up.

Their attitude has permeated the entire organization. This writer recognized it in the conduct of examiners and attorneys for the Board at the hearings he has attended.

The Act and the Board are on the spot. No one can blame the public, suffering from years of community turmoil due to bad administration of a bad act, for taking all legitimate shots at both.

About the only place the Board members can now look for sympathy is in the office of the CIO.

NEWS OF THE MONTH

ACMA Meeting Plans

The theme of the annual convention of the American Cotton Manufacturers Association, to be held in New Orleans Apr. 13 to 15, will be "Looking forward for the next 10 years in the cotton-textile industry." An executive session, on the evening of Apr. 13, will be devoted to an off-the-record informal discussion of vital problems affecting the industry. The second day will have a business meeting in the morning, a golf tournament in the afternoon, and a banquet in the evening. A final session on the morning of Apr. 15 will conclude the meeting, which is expected to be one of the most important ever held by this association.

The Textile Dope-Sheet

Comparisons of textile activity with last year make pleasanter reading than did similar comparisons a year ago. TEXTILE WORLD's estimate of textile mill activity for the first two months of 1939 is 42% greater than that for the corresponding period of 1938; and 12% better than an assumed "normal" year (1924–31 average).

Price trends during those two months, as shown by TEXTILE WORLD's index numbers, were mixed, but mainly upward. In the cotton group, the raw material and fabrics stayed stationary, while yarns advanced in January but went back to the December level in February. In the wool group, all indices advanced in February. The raw silk index number, of course, advanced sharply. The rayon yarn index remained unchanged.

Why Are the Britishers Coming?

Recent reports from England stated that delegates of the British Federation of Master Cotton Spinners Association had sailed for this country to protest to Secretary Wallace against United States cotton policies which, they claim, have been responsible for shortage of certain types and grades of American cotton.

Our Washington office inquired about this and advised as follows: "Cotton specialists at Department of Agriculture think trip of Britishers is in connection with routine adjustment of samples and technical questions concerning grade and staple. They do not believe there is any shortage in England of any particular grade and staple. This question of methods of sampling is considered at a meeting here every three years. If there is any squeeze on any specific grade abroad, Department of Agriculture has not heard of it."

So there you are. You pay your money and take your choice.

Mark Time in Labor Row

(From TEXTILE WORLD'S *Washington office)*

Quiet on the AFL-TWOC textile front is interpreted here as lack of concern on the part of Sidney Hillman and CIO. Francis Gorman's Washington representatives report favorable progress of UTW organization in the South, still claiming that large numbers of TWOC workers there favor going to the AFL side. CIO counters with the statement that not one TWOC local in the South has made the shift. It is reported that Gorman's southern camp has been given a mere pittance for organization work, and that only with the AFL hope that it will serve to irritate the Hillman camp. Mr. Gorman is in the South now, personally working on his campaign.

Meanwhile, the irritant is working in reverse. AFL loudly called Gorman a Communist when he was with TWOC, and now Mr. Green naturally finds him hard to welcome back to the good old 100% American fireside. In fact, what some weeks ago seemed a nasty suspicion on the part of realistic observers now looks like a probability: that AFL will unload Gorman as soon as he has served its purpose.

The future of AFL vs. TWOC is contingent on too many things to be predictable. It depends on whether AFL really goes down the line for power in the textile field; on what kind of leadership it provides; on whether peace comes between the two labor powers; and if not, on whether one of them eventually dominates organized labor.

NATIONAL COTTON WEEK poster which is to be distributed by Cotton-Textile Institute for the nation-wide event this spring. The poster is 12x18 inches in three colors.

Truth-in-Fabric Hearings Again

Again the Schwartz-Martin "truth in fabrics" bill to compel manufacturers and handlers to show on labels the percentage of virgin and reworked wool, has had hearings in both House and Senate. Interest in this legislation is generated largely by the wool growers (who storm into Washington from the Western States), farm unions, and women's consumer groups. You can ask ten persons who are promoting the legislation why it is needed in addition to the Federal Trade Commission's wool rules, and get no answer. Growers' and consumers' arguments against reworked wool being sold as all wool are impressive on the Hill. So also are the manufacturers contentions that present practices are in no way detrimental to consumer interest. The Schwartz-Martin bill is the kind of thing that nobody in Washington would bet against.

Open Price System Waged by Whiteside

Exact and truthful knowledge of the price situation is a requisite to profitable operation of American industry, according to Arthur D. Whiteside, president of Dun & Bradstreet, in an address before the 24th annual banquet of the Textile Salesmen's Association at the Hotel Pennsylvania, New York, Feb. 21. Information about competitors received from buyers is about 90% wrong, he said, and went on: "The open price system is the only thing that will save American industry—a central office for interchance of price information. I've seen a 30-loom mill break the price on wool goods." Mr.

THE WINNING DRESSES in the American Viscose Corp.'s nationwide Crown-Tested Rayon Dressmaking Contest awarded prizes in the directors' room of the New York World's Fair 1939. At left is Grover A. Whalen, president of the Fair Corporation. At right is Samuel A. Salvage, chairman of the board of American Viscose Corp. More than 1,000,000 yd. of Crown-Tested rayon fabrics were sold as result of this contest.

Whiteside offered his personal services to the textile industry in any way they would prove most useful. About 500 attended the banquet. Frank R. Scull presided.

Pact With TWOC

American Woolen Co. and the TWOC have executed agreements relating to the Wood and Ayer Mills in Lawrence, Mass., and to the Anderson Mill in Skowhegan, Me., and the Sawyer Mill in Dover, N. H. The agreements call for a 40-hr. week for productive workers, a share in the work arrangement among the regular employees, and establishment of arbitration machinery for the settlement of disputes. It is provided that there will be no strikes or lock-outs during the life of the agreements. The pacts will be automatically renewed except on notice from either party.

Textiles "Salute" Rubber

The cotton-textile industry is one of five industries which "saluted" the rubber industry on the occasion of its centennial celebration in Akron, Ohio, Feb. 23. Floyd W. Jefferson, of Iselin-Jefferson Co., spoke for the textile industry. He pointed out that in one year the amount of cotton consumed in the manufacture of rubber products totaled more than 375,000,000 lb., with a value of $52,500,000. "Cotton, unlike rubber," he stated, "is grown in our own United States. Whatever helps it, therefore, helps us all in the scope of the vast economic structure. It is, then, with a deep sense of appreciation of what his discovery has meant to America and its people that the cotton-textile industry joins in Akron's salute to the memory of Charles Goodyear, and to the centennial commemoration of his great discovery."

Fifty Per Cent Up

Current sales of the fabrics of Riverside & Dan River Cotton Mills were approximately 50% ahead of a like period last year, Robert R. West, president of the company, told stockholders at their annual meeting Feb. 16. Unfilled orders at the mill also had doubled, he said. New rayon lines introduced, he reported, "are selling in rather significant quantities." There exists a great need for textiles on the part of distributors, Mr. West concluded, and once a confidence in values can be established there should be active and sustained demand for goods.

Soy Bean Fiber

Research on the production of a synthetic wool fiber from soy bean protein has progressed to a point where it has been possible to supply samples of the fiber to various textile mills, according to an announcement made last month by Adrian D. Joyce, president of the Glidden Co., Cleveland, Ohio. Glidden Co. has been cooperating with research engineers of the Ford Motor Co., in an effort to produce this fiber, the latter company being particularly interested in the development of a yarn suitable for use in making automobile upholstery fabrics. Glidden is a paint and varnish manufacturer, and, according to Mr. Joyce, it is not the intention of the company to enter the production of textiles. Research on isolation of soy bean protein has been going on for at least six or seven years; that on soy bean fiber about 18 months.

Carded Yarn Meetings

Three meetings—at Raleigh, Charlotte and Atlanta—of the Carded Yarn Group were announced last month for the purpose of again considering the Cotton Yarn Rules drawn up some time ago by spinners. According to Owen Fitzsimons, secretary of the group, selling representatives are offering strenuous objections to the rules, which are intended to "eliminate recognized and existing evils in the merchandising of cotton yarn." The various mills in each area were asked to urge their respective selling agents to cooperate in the rules, and if unable to obtain this cooperation to influence them if possible not to fight against the rules. No objection to the rules has been voiced by the mills, according to Secretary Fitzsimons.

THE ABOVE ADVERTISEMENT is an important part of a campaign conducted for Spool Cotton Co. by Kenyon & Eckhardt, Inc., New York, which received the medal award for the best campaign of 1938 in trade and professional publications, given annually by *Advertising and Selling*. The campaign was based on a survey which gave basic facts on women's sewing habits.

Alabama Meeting

The annual meeting of the Alabama Cotton Manufacturers' Association was scheduled to be held March 16 and 17 at Mobile, Ala. This year, the meeting was laid out along the lines of a regular convention, with both business and social activities. It was decided that the annual banquet would be held at Grantview Park Club; the other sessions at Battle House, convention headquarters. Officers who served during the last year were R. W. Jennings, Lanett, president; P. A. Redmond, Birmingham, vice-president, and Joe L. Lanier, West Point, Ga., treasurer. Dwight M. Wilhelm was secretary. Officers elected for next year will be announced in our April issue.

Phila. Textile Alumni Meet

At the thirty-eighth annual banquet of the Philadelphia Textile School Alumni Association, held March 3 at the Ritz-Carlton Hotel, Philadelphia, speakers were State-Senator Franklin S. Edmonds, Prof. H. E. Michl, and Major Norman A. Imrie. Bradley C. Algeo, assistant director of the school and president of the association, was toastmaster.

Speaking on "Pennsylvania and the Protective Tariff," Mr. Edmonds pointed out the importance to manufacturers of the high-tariff principle, and traced its development from Revolutionary times.

Professor Michl, in his talk on "Government and the Textile Industry," urged that cotton prices be permitted to seek their own levels; that a Government subsidy be paid to cotton farmers, its amount to be the difference between the price of cotton and what would make possible payment of a decent wage to their employees; and that efficiency in growing be increased until cotton can be grown for the world market at a profit, the subsidy to be discontinued when that point is reached.

As the last speaker of the evening, Major Imrie discoursed humorously on the difference between conditions in this country and in the European nations.

A.A.T.C.C. Notes

At a meeting of the Piedmont Section, American Association of Textile Chemists & Colorists, held Feb. 11, in Greenville, S. C., B. R. Andrews, of Andrews & Goodrich, Inc., presented a paper on "Tomorrow's Dryers"; Norman S. Cassell, of Aridye Corp., discussed "Printing with Pigments"; Dr. M. A. Dahlen, of E. I. du Pont de Nemours & Co., spoke on "Recent Organic Chemical Developments"; a discussion of hosiery dyeing problems was led by Jess R. McAteer, of the Hatch Full Fashioned Hosiery Co.; L. M. Boyd, of Scholler Bros., Inc., and Fred E. Sprock, of Geigy Co., Inc.

At a meeting of the New York Section Feb. 24 in Rochelle Park, N. J., John H. Faunce, Jr., of American Rolling Mill Co. showed a moving picture on manufacture of stainless steel; Hector Borghetty, of General Dyestuff Corp., discussed "Auxiliary Products for Textile Use."

At a meeting of the Philadelphia Section, held March 3, R. E. Nelson, of the Naugatuck Chemical Division of United States Rubber Co., spoke on "Latex—A Textile Auxiliary."

TEXTILE MILL SIDE-LIGHTS—NO. 3

"Gosh! My wife will raise old Ned, when she finds out I been gamblin'!!"

Idle Insurance

New and unusual is an insurance plan being considered by silk and rayon dyeing companies in the Paterson, N. J., area. Under this plan owners of dyeing establishments would pay annual premiums while their plants are busy and then collect "damages" during shutdowns or slack periods. The plan is similar to unemployment insurance, with the exception that the employer, rather than the employee, would be compensated for idleness of the plant. It is expected that a thorough survey of the industry will be made by Arthur F. Morton, Inc., accountants and engineers, to determine whether it is feasible to inaugurate such a plan.

Philadelphia Outerwear Men Meet

The Philadelphia Knitted Outerwear Association held its annual meeting at the Warwick Hotel, Philadelphia, last month. William Portner, of the Franklin Sweater Mills, was toastmaster. The annual award to an outstanding figure in industry was given to John Sichel of the Dearnley Bros. Worsted Spinning Co. A. Liebster, of M & M Knitting Mills, was reelected president. Bernard Steuer, of Travelo Corp., was elected vice-president, and H. H. Cohen, secretary and counsel.

Ask Wage Study

Resolutions calling upon Secretary of Labor to make a study of wage differentials in the dyeing industry to provide a basis upon which comparable wage levels may be established, were introduced into the New Jersey legislature last month by assemblyman William J. Hanna. The resolution states that wage dif-

Textile Calendar

- *Alabama Cotton Manufacturers Association, annual convention, Battle House, Mobile, Ala., March 16 and 17, 1939*
- *Southern Textile Exposition, thirteenth show, Textile Hall, Greenville, S. C., April 3 to 8, 1939.*
- *Southern Textile Assn., meeting during show week at Greenville, S. C.*
- *American Cotton Manufacturers Association, annual meeting, Roosevelt Hotel, New Orleans, La., April 13 to 15, 1939.*
- *Knitting Arts Exhibition, 35th annual show, Commercial Museum, Philadelphia, April 17, to 21, 1939.*
- *North Caroline State College Style Show and Students' Textile Exposition, Raleigh, N. C., April 20, 1939.*
- *Piedmont Section, A.A.T.C.C., regular meeting, Greensboro, N. C., April 29, 1939.*
- *Southern Textile Association, annual meeting, Forest Hotel, Myrtle Beach, S. C., June (date to be set), 1939*
- *National Safety Congress and Exposition, Atlantic City, N. J., Oct. 16 to 20, 1939*

ferences in the dyeing industry range from 25¢ in the South to 54¢ in the Passaic County area, and that the wage differences have contributed to the economic chaos in the dyeing industry in the Paterson district.

Versatility of Tenasco

Tenasco, the American Viscose Corp.'s new high-strength, viscose-type, continuous-filament rayon, has uses now which span the range from automobile tires to evening gowns. Recently triple-sheer type fabrics made of Tenasco have gone into production, the yarn being 50-denier, 24-filament with crepe twist in both warp and filling. The new type rayon is also going into broadcloth for men's shirtings, this yarn being of the semi-dull luster variety. In the lining field it is being used in twill and cotton linings for men's and women's wear; also for shoe linings and for uniforms.

N. C. Style Show

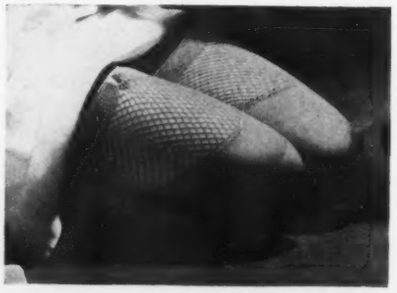
Nine colleges for women in North Carolina will be represented by contestants in the 12th annual style show at State College, Raleigh, on Apr. 20, Dean Thomas Nelson of the Textile School, which sponsors the style show and exposition, has announced. Dean Nelson said 115 college girls, students in home economics, would model clothing made by themselves from materials designed and woven by students in the Textile School.

Foremanship Discussed

Textile Operating Executives of Georgia held their annual spring meeting March 11 at Georgia Tech Auditorium, Atlanta, Ga. Foremanship, rather than the usual technical problems, was discussed. Details of the meeting will be presented in our April issue. Allen Jones, of Columbus, Ga., is general chairman of the group.

Starting New N. C. School Building

A further step in North Carolina State College's $1,600,000 building program has been taken with the opening of bids for the new textile building. Estimated cost of the building, which will face Hillsboro St. on the extreme western edge of the campus, is $350,000. A PWA grant will assist in financing the project. The excavation has been in progress for some time.



THE NEWLY-DESIGNED "Snood" stocking with Lastex mesh welt is shown above. The mesh absorbs the strain caused by bending the knee, adds to life of stocking and comfort of wearer.

Gray Goods Sag

Potential demand for cotton gray goods continued during February, yet actual market conditions in general grew worse for the first three weeks. Prices of staple print cloths dropped 1/8¢ below 1938 lows. There was considerable talk of curtailing operations. A moderate revival of interest has eased the situation somewhat. Government developments were favorable during the period. Near cotton continued strong despite weakness in futures.

Rayon Fabrics Steady

Weaving operations on rayon fabrics showed slight gains during the month of February coming to about 75% of capacity on standard fabrics toward the end of the month compared with about 72% at the beginning. Sales were lower than this production rate but prices remained steady and weavers are optimistic on the spring outlook.

Wool Goods Firm But Quieter

Spring demand for wool goods has been tapering off and the formal offering of most fall lines has been postponed until about the middle of March. It was estimated toward the end of February that unfilled orders for all types of wool goods amounted to 28,000,000 yd. This compares with estimates from the same source placing unfilled orders on Dec. 31 at 38,500,000 yd.

Advance guesses as to the new fall-season price level indicate that there may be a rise of from 5 to 10¢ a yard above present levels.

There has been a move toward pricing wool blankets, and merchants feel that profit possibilities have been pared too low a point in the early figures which have been heard.

Confusing Hosiery Market

Numerous opposite trends are in conflict within the hosiery market with the result that the situation is more than usually confusing. Raw silk has made a considerable advance since Jan. 1 (see page 66), which is likely to cut short the cheap offerings on the low-end of the full-fashioned market. Because of this situation, there is likely to be a rush of orders and the possibility of price advances on unbranded lines in many quarters. It is understood,

however, that branded lines of full-fashioned are not likely to be advanced for another month or two. Already one large maker has lifted prices on silk seamless goods, 5 to 15¢ a dozen.

Underwear Men Optimistic

At the sectional meeting held by the Underwear Institute at Reading, Pa., on Feb. 15, about 40 mill men gathered and expressed optimism over the outlook for the coming spring season. Roy A. Cheney, president of the Underwear Institute, reported on the wage-hour law situation. The motion picture "King Cotton Crown," produced by the Durene Association of America, illustrating the use of Durene yarns in underwear and showing the marketing program of the organization, was exhibited.

Stresses Wool Bathing Suits

Style information from abroad is to the effect that wool in both knit and woven forms is offered as the leading fabric for beachwear. Several French style originators are laying special emphasis on bathing suits and beach accessories this season using jacquard jerseys, Lastex wool combinations, etc., for bathing suits. Printed wool muslins are appearing in shorts and beach pajamas.

Wool Tops Slack After Rise

Wool tops on the spot market in New York opened the month at 86¢ for the Top Exchange standard, rose to 87¢ and receded on duller trading to 86½¢. Trade interest in the Exchange did considerable switching of contracts from March to the more distant months, which were slightly lower despite the acknowledged bright outlook of the raw wool market. Consumption of apparel wool in January, at weekly average scoured basis of 5,118,000 lb., was slightly below trade expectancy.

Rayon Yarn Firm

A price list issued by Industrial Rayon Corp. in mid-February set a 47¢ basis for unbleached 150-denier knitting cones. This indicated a firming up of the market since not long ago there had been trading down to 45¢ on this item. Bleached weaving cones remain unchanged in price.

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This and That

▶ Dr. Harold DeWitt Smith of A. M. Tenney Associates, spoke on "Trends in Synthetic Fiber Developments" before the Textile Society of Canada, Eastern Division, in Montreal, Mar. 11.

▶ Exports of cotton fabrics from the United Kingdom in 1938 were the lowest for 90 years, while exports of cotton yarn were the lowest since the cotton famine of the early 1860s.

▶ France to Rhode Island is the latest version of textile migration. A manufacturing concern now located in France is considering a new location in Warren, R. I., according to report. The manufacturer is prepared to invest $50,000 in the establishment of the American plant, it is stated.

▶ Industrial Rayon Corp. has designed a number of attractive prints for users of knitted underwear fabrics. Rollers for producing the prints are in possession of one printer to whom customers can send the fabrics to be printed.

▶ Hosiery made from Nylon had its first general showing at the Golden Gate International Exhibition, which opened Feb. 18, in San Francisco.

▶ Original fabrics and colors from the February openings of French courturiers, together with identical shades in United Dyed Certified couturier colors, were displayed by United Piece Dye Works, Feb. 6, at the Waldorf-Astoria, New York.

▶ Federation of Textile Technical Associations of Canada came into existence when a meeting was held Feb. 4, in the Royal Connaught Hotel, Hamilton, under chairmanship of E. P. Carney of the Canadian Association of Textile Colorists and Chemists.

▶ The front cover photograph, this month, is from R. I. Nesmith & Associates, New York.

Wage-Hour Prospect Scrambled

36c. wool rate recommendation complicates matters— April 1 now earliest probable date

By BLAINE STUBBLEFIELD
Washington Office, TEXTILE WORLD

TEXTILE committees representing the cotton, rayon, silk, wool, and hosiery industries, laboring toward wage recommendations for Administrator Andrews, kept their proceedings confidential to avoid prejudicial influences. The story in full cannot be told until after the final orders are issued. But some facts, plus the observations of Washington textile and labor men, can be stated now.

First impressions up and down corridors after the announcement of the 36-c. minimum wool wage were: that the committee had stepped a bit out of line in its relationship with the original textile committee; that Donald Nelson, who was absent, possibly did not know the vote was to be taken; some wondered if the absence of Sidney Hillman had any special significance. Such errors as these observers may have fallen into will come out in the ultimate wash.

But an early shakedown of fact and opinion revealed still other considerations. Reliable sources suggested that the 36-c. rate wasn't the last word after all. They pointed to the no-man's land of overlap between wool and cotton and other fibers in mixed goods. How can the percentage of wool to be tolerated in "cotton" goods (and vice versa) be set unless the all-important minimum wage rate is known and used as a factor in solving the equation, was their question. You can't work an equation that has nothing but Xs in it, said they. Possibly the 36-c. wool rate was set up as a trial figure. The same observers were quick to add, however, that if the 36-c. rate was experimental, it might also turn out to be the *right* figure, and that it might stand as the finally recommended rate. This line of reasoning immediately suggests a sequel conclusion: that if a trial figure was needed on the wool end of the equation, it would also be desirable or necessary on the cotton end. But no such conclusion was actually drawn.

Still other reasons were strongly hinted, outside of committee and Division circles, why the wool rate might be reconsidered, though not necessarily changed. In fact it seemed probable that another meeting of the committee would have to be called to weigh further argument.

Also the possibility that the textile committee might fail to agree on a minimum wage when it convenes on March 21, and that Mr. Andrews might have to dissolve it and call for a new group was recognized during recent weeks. Wide regional differences, the relatively greater importance of a few cents in the textile groups, and the vastly greater volume of the industry as compared with wool, created a much harder problem. When a member must go against the wishes of his constituent community in order to reach an agreement with his committee, sometimes he prefers to chuck it and go home. Although Mr. Andrews could discharge part of the members and appoint others to form a new group, critics would call it "packing" the committee, and it wouldn't do. On the other hand a brand new committee would have to start almost from scratch on the whole problem, and it would be near time for the second year 30-c. rate to go into effect before anything could be done.

Wool "Overlap" Problem

The wool overlap in mixed goods was one of the hard problems, and interwoven with it was the economic relationship of the wool wage to the basic textile wage. If the cotton and wool rates were the same, there would be no resulting competitive advantage to either. But if the two rates were far apart, a very substantial advantage would result to the employer with the low rate. Authorities discussing this point, when asked what they meant by "far apart," answered that 2 or 3¢ would be far. They implied that 5¢ would be so far as to demand extensive adjustment in the percentage of wool overlap. In other words, the theory was that if a differential was set up in wages it must be compensated in the schedule of mixtures.

Still another perplexing problem before the textile group was that of multiple minimum wage rates. The law was interpreted by some committeemen to mean that different rates could be set for different industries, such as silk, cotton, rayon. But once a basic rate was set for rayon, for instance, they do not believe that different rates could be set for the various occupations *in* rayon. The legal division of Wage-Hour is studying this question now, and unofficially is inclined to agree that one rate for one industry was the intent of Congress. It is pointed out that multiple rates within an industry might run into the hundreds, and that, to exaggerate a bit, it would take half the people in the country to negotiate wage rates for the other half that worked.

As predicted in the Washington letter of last month, the final wage orders will not come earlier than April. If threatening complications arise, it could be much later. Opinion here was that Mr. Andrews would be satisfied with a 30 to 33½-c. cotton textile wage. There was no speculation as to the figure for rayon and silk. Some thought Andrews might possibly reject the 36-c. wool wage, on the ground that the law directs him to raise all workers to 40-c. as rapidly as possible without jeopardizing employment opportunity. He could easily argue, these observers hold, that 36-c. would not have such effect on the wool manfacturing industry. But a 40-c. wool rate would make the spread between wool and textiles almost irreconcilably wide. Others think that, rather than sacrifice any more weeks or months of benefits to the textile group, he will accept the wool rate, and call the wool committee again at an early date.

The Hosiery Committee

Industrial Committee No. 3 was appointed for hosiery Feb. 1, and the Administrator's announcement pointed out that the object of the committee is to recommend the highest minimum wage which will not disturb the industry to the extent of curtailing employment. The 15-man group, five each for labor, employers, and the public, with George W. Taylor as

chairman, held its first meeting Feb. 23.

At this meeting, which was closed, two witnesses were heard. Carroll R. Dougherty, chief of the economic section of the Wage-Hour Division, argued the probable effect of various wage rates on hosiery prices. J. Perlman, chief of the Bureau of Labor Statistics, presented an elaborate study of the industry. Calvert Magruder and other Wage-Hour officials instructed the committee regarding its purposes and procedure.

Seamless and Full-Fashioned Rates

On Feb. 24, Burton E. Oppenheim, chief of the industry committee section, addressed a letter to all associations and other interested parties, inviting them to submit analyses showing probable effect of 30¢, 35¢, and 40¢ wage rates, or of other rates permissable within the law. The letter advised that those who wished to appear personally should so indicate, stating which type of manufacture they represent and estimating the time they will need. Only data presented in person will go on the record. March 28 is for seamless manufacturers, and March 29 for full-fashioned producers.

Unofficial gossip around town is that the rate for full-fashioned hosiery is likely to be 40¢, the highest rate within the power of the Administrator, and that the seamless rate will be somewhat less. The seamless people are located in cotton manufacturing communities and the recommendation of their rate will be controversial.

Probably another separate committee, for knit products, will be admitted to the textile family, though Administrator Andrews wants to keep the number of units down as much as possible. It will be recalled that the underwear people wanted to sit in the same tepee with cotton textiles and were finally ruled out.

Carpets and Rugs

Present indications are that a separate committee will not be created for wool carpets and rugs. The Wool Committee recommended that its own roster be increased by six carpet members, two each for labor, employers, and the public, and that the appended group suggest minimum wages for recommendation. At first it was thought that because of a complicated competitive situation between wool and other floor coverings, a study would take considerable time, and that recommendations should not be undertaken until after the Administrator issues his wool and textile orders. Now, however, it seems possible the carpet and rug members may be appointed and told to go to work any time.

In the matter of learner exemptions, some observers have concluded that the Wage-Hour Administration is against them on principle. This is not true. Several exemptions are about to be issued in the apparel field. In all cases, certificates will be "tailor made" on evidence; that is, no blanket orders will be given. The cotton textile group, it will be recalled, withdrew its application. But the silk throwsters, narrow fabrics, and candlewick spreads left their bids in. The throwsters' case was rejected. Evidence was taken on narrow fabrics and candlewick, and the exemptions office is working on drafts of

Dr. George W. Taylor, chairman of the recently appointed Hosiery Industry Wage-Hour Committee. In addition, Dr. Taylor is vice-chairman of the cotton-textile committee, and of the wool committee.

findings, which are delayed somewhat by work on six or seven volumes of hearings on apparel. The evidence on knitted wear and hosiery is also being studied, and determinations will follow those for the apparel group. Quite a few applications for apprentice exemptions have ignored the ruling that these must be established under the indenture standards of the Federal Committee on Apprenticeship, and have got nowhere.

First penalty for violation of the wage-hour law fell upon a New England contract shoe stitcher. Department of Justice Wage-Hour Section charged the company with failure to pay the minimum, falsification of records, failure to keep required records, and placing in interstate commerce goods produced under those conditions. The judge fined the company $500, and fined one of its chief executives $1,000 on each of four counts, suspending three fines, and required about $700 restitution of wages. Total cost: $2,200. Whereas some other violators have paid restitution and have been excused, this one was regarded as wilful and was a criminal case. Two injunctions against garment manufacturers are pending. Wage-Hour enforcement division is after malefactors in earnest, with full cooperation of the Justice Department.

Looking over the recent record of Wage-Hour matters: House Budget Bureau's 1939 deficiency is cut from $950,000 to $850,000. . . . Industrial committee No. 3 appointed for hosiery. . . . AFL moves to amend the law to prevent exemptions from minimum wage, though practically none has been granted. . . . Interpretative Bulletin No. 7 prohibits small lumber men from operating under the guise of farmers. . . . Andrews, speaking at Raleigh, N. C. says low wages never helped the South. . . . Andrews announces he will ask Congress to amend the law to permit exemption of high salaried workers from the over-time provisions, instead of calling a hearing under existing law. . . .Andrews enjoined a violator at Waterloo, Ia., from further shipping in interstate commerce; company must pay $2,200 back wages. . . . Issues regulations on homework record-keeping.

A little flurry of small headlines was all that marked a narrow squeak past a lot of trouble for the Wage-Hour Division. With Division personnel facing forced furloughs because the pay-master's satchel was empty, Congress hurried into consideration of a deficiency bill giving Andrews' office $850,000 for the rest of the fiscal year. To appease hot contenders when the law was passed, the Wage-Hour Division was put in the Labor Department, but made *independent* of the Secretary—a curious twist indeed, but not uncommon, as laws grow around obstacles like trees around rocks. The House wanted to give the money into Secretary Perkins' custody. The Senate said: Let Administrator Andrews have it. Mr. Andrews looked worried that day, as he seldom does. A man couldn't run an independent agency with some outsider telling him how to spend his operating money. And besides, not only the $850,000 would go out of his control, but likewise the $3,350,000 that has been asked for fiscal 1940. But Mr. Andrews, who is noted for knowing when to and when not to talk, said: "I don't want to get involved in any controversial matter." The happy ending is that the House, by insistence of the Senate, took another look at the curious situation and decisively reversed itself in favor of the Administrator. As for Secretary Perkins it was just another bust on the chin and she's used to them. The Senate first hit Roosevelt, too, but he didn't feel it.

Urges Profits for Wool Mills

Arthur Besse reelected head of N.A.W.M.

AT the annual meeting of the National Association of Wool Manufacturers Feb. 15 at Hotel Commodore, New York, Arthur Besse, president of the group, set the keynote for the coming year by urging that profit be figured into prices at which business is taken. He said that the disastrous record of losses by the industry in 1938 overshadowed all else in that year and he estimated the aggregate loss from the partial reports then available as somewhere between $20,000,000 and $30,000,000, nearly as bad a situation as in 1930 to 1933.

"The industry needs courage," he advised his listeners, "and needs a sales technique designed to offset the constant emphasis on price on the part of the larger buyers. Buying and selling is something of a game, but, in order to win, the seller must be equipped with something besides a price concession. After all, the object of conducting a business is to make a profit. The urge to make money should be more persuasive than the desire to make a sale. A number have learned during this past year that it is sometimes profitable to let a customer walk out; that it is less expensive to lose the business than it is to take it at the price offered.

"Barring unforseen circumstances, it looks as though a reasonably satisfactory business could be anticipated for fall. I hope the industry will handle it *as a business* and will have the courage to make a legitimate profit. In fact you are entitled to a reasonable profit for 1939 and to something additional to counterbalance the losses of 1938. I am convinced that there is no reason for operating at a loss this year. I hope that you gentlemen have a like conviction."

Mr. Besse listed the reciprocal trade treaty with the United Kingdom as one of the disastrous events of 1938 with its percentage reduction of 41% in the advalorem rate on wool piece-goods in the higher brackets.

"You are all interested," he added, "in the possibility of a trade treaty with some country which might change the rate of duty on raw wool. This is important among other reasons because of its effect on inventories. While no definite information can be obtained from the State Department, it is known that difficulties have arisen in connection with negotiations both with Australia and with Argentina. The problem is complicated by the fact that those countries will ask for concessions on items which this country itself produces in large volume. The indications are that there will be no treaty with either country for some time and that if there is to be a cut in the duty on raw wool, it will be delayed until the latter part of the year or even later."

Mr. Besse touched on the cessation of promotional activities of the Associated Wool Industries. "I am sorry the effort has been abandoned," he said. "In my opinion it was worthy of a much greater degree of support than it received."

Mr. Besse was reelected president of the association; Walter Humphreys, secretary-treasurer; Franklin W. Hobbs, vice-president. Three new vice-presidents are H. M. Ashby, Abbott Stevens and E. D. Walen. Directors at large for three years include Millard D. Brown, Lewis A. Hird, John L. Hutcheson, Jr., S. L. Lawton, Aram Milot, Oliver Moses, 3rd, and L. J. Young.

Rayon Weavers Propose Code

For better regulation of promotional activity

THE rayon weavers' committee has proposed a code relating to rayon brand identification and promotion. It does not include the talked-about proposal that weavers would cease to accept specifications of rayon brand in their sales of fabric to converters.

It will be remembered that "cooperative advertising" was the thing that stirred up the excitement, and in the elimination of that abuse the rayon yarn producers were for the most part sympathetic. After several tries, a revised set of proposals was codified about the middle of February and by early March at least four producers had accepted them. Others were expected to follow suit, though perhaps with reservations.

The salient provision is that rayon yarn producers' advertising should be on a strictly institutional basis and paid for 100% by the yarn producer. This advertising is to be over the name of the producer and names of converters and garment houses are not to be mentioned. Retailers may be mentioned with restraint only in connection with fabrics or garments actually bought and on sale by the retailer. No allowance for any purpose may be made to purchasers of yarn. Sales helps are to be limited to tags and labels. Booklets, blow-ups, display cards, etc. are taboo. No promise of advertising or promotion, expressed or implied, may be used as leverage to effect sale of yarn. Yet the "tested quality plans" of a number of yarn makers are being carried on without likelihood at present writing of being changed.

Although from some angles the matter seems on its way to be concluded along the lines of the weavers' proposals, there are houses which believe the negotiations have just begun. To these the proper launching of experimental numbers originated by the yarn manufacturer is vital to the series of steps by means of which synthetics have reached their present high ground and can continue farther. The yarn man should be given a free hand, they say, in his constructive promotion, in conjunction with a converter or dress house, of a new and speculative item. This, they argue, performs a double service that ought not to be sacrificed. A successful new fabric often supplies needed momentum to the market.

The converter feels somewhat neglected in the present proceedings. A few of the fraternity are out of sympathy with them, while others believe the changes now going on are inevitable developments. One converter is himself offering cooperative advertising support to his customers to take the place of what may formerly have come from yarn mills. Dress manufacturers are innocent bystanders and interested spectators. Also among the spectators is said to be the FTC.

Textile Council

Hailed as forward step by Conze, re-elected Federation head

FORMATION of the National Council of Textile Industries, by the cotton, rayon and silk groups, was hailed as a forward step by G. H. Conze, in his message to the annual meeting of the National Federation of Textiles, as president of the Federation. Commenting on this step toward coordination, Mr. Conze said:

"The year 1938 has brought about one more long-desired development. For several years, especially since the NRA, there has been growing realization that competition in the textile industry has been undergoing realignment. What had been a group of industries bound together by a common interest in one fiber or another became a group of industries bound by problems of processing. Weavers of cloth were more interested in conditions affecting other weavers, than the problems affecting other users of any one fiber.

"With this change, due primarily to the common use of rayon in combination with the older fibers, came the need for a change in cooperative activities within the industry. The Federation early took cognizance of the situation by reorganizing its membership on a basis of an association of manufacturers, rather than a heterogeneous group of several different types of processors and distributors using a specific fiber.

Progress in Coordination

"This year saw development of that thought in coordination of action between the Federation, the Cotton-Textile Institute, the National Rayon Weavers Association and several other textile manufacturers' organizations in connection with problems of the Fair Labor Standards Act. The most recent step is the formation of the National Council of Textile Industries under the auspices of the three organizations named. No overly-ambitious program is being adopted. Instead, it is planned to start with a loosely knit organization for the primary purpose of mutual consideration of broad problems, chiefly in legislative fields.

"The by-product of this as well as any other cooperative endeavor, however, is the very important one of establishing better acquaintance among the participants and keener understanding of mutuality of interests. The formation of the Council is a signal step in this direction and augurs well for consideration of the economic as well as the legislative problems facing the textile industry in its efforts to maintain stabilized conditions in a complex competitive market."

G. H. Conze, reelected president of Federation

M. K. Yorks reelected vice-president

I. L. Blunt, reelected secretary

G. H. Conze is the latest to add his voice in support of a movement coordinating the activities of the several branches of the textile industry. He had previously demonstrated his faith by deeds, that is, by the affiliation of the National Federation of Textiles, which he heads, with the National Council of Textile Industries, now in process of formation. His spoken endorsement, at the annual meeting of the Federation, will give the movement further impetus.

He defined most accurately the real reason why such coordination is so necessary today: "What had been a group of industries bound together by a common interest in one fiber or another became a group of industries bound by problems of processing." That tells the story.

We understand that during the next month initial organization of the Textile Council will probably be completed. We are confident that the movement will grow until eventually it embraces and represents the entire textile industry. Our readers know, from our sponsorship of the plan for over five years, how important we regard that prospect.—Editor.

William G. Lord of Galey & Lord, Inc., is a new member on the board of directors, as result of the annual meeting. The remainder of the board was re-elected. The full board now includes: Edward F. Addiss, the Burlington Corp.; W. Malcolm Brady, J. P. Stevens & Co., Inc.; G. H. Conze, Susquehanna Silk Mills; Ward Cheney, Cheney Brothers; Jarvis Cromwell, Wm. Iselin & Co., Inc.; Wm. G. Lord, Galey & Lord, Inc.; Wm. H. Hubbard, Wm. Skinner & Sons; William Menke, Menke Kaufmann Co., Inc.; Henry E. Stehli, Stehli & Co., Inc.; A. D. Walker, A. D. Walker & Co. and M. K. Yorks, Bloomsburg Silk Mill.

Following the annual meeting, the board re-elected Mr. Conze as president, M. K. Yorks as vice-president, I. L. Blunt, secretary, and A. A. Clune, treasurer. Announcement was made that the Uptown Credit Corp. of the textile industry, the affiliate member of the association, had elected as its representative on the board R. G. Woodbury of Textile Banking Co., Inc.

In her report as secretary, Miss Blunt pointed out that the Federation enters upon its 67th year with a staff of 70 employees and a program of future activity that includes technical research, cooperative work with other branches of the textile industry, continuance of its industry service bureaus, and assistance in forming new groups.

Public Relations Progress

More and more textile organizations doing worth-while jobs in that field

THE idea of a positive program toward building sound relations between the textile industry and its employees, customers and the general public, has caught on. The efforts in this direction are becoming more and more numerous, and more and more effective. As examples, but not at all as a roll-call, we present a few cases on this page. We invite from our readers information concerning other jobs.

* * *

Durene's Campaign: The Durene Association of America is carrying on an intensive campaign to increase the sale of merchandise made of Durene yarn. One of the important lines of approach has been the program for training sales personnel. The film "King Cotton's Crown," mentioned previously in these columns, is a key part of that effort. Various promotional and training booklets have been prepared, carrying such interesting titles as "Refreshing As a Sea Breeze," "I Want to be a Good Underwear Salesman," etc. The association is also sponsoring the use of tags, labels and stickers, for the identification of Durene merchandise. Both manufacturers and retailers are being enlisted in this identification drive.

Bread Cast Upon the Water Returns: A year-and-a-half ago the Nashua Mfg. Co. arranged a special inspection trip through its Nashua, N. H., plant for a large group of buyers of its products. Last month, resident buyers of leading drygoods wholesalers gave a dinner to members of the Nashua organization in New York. The relationship built up by these two events represents a fine spirit of mutual regard.

Dividend Check, Plus: Stockholders who received their checks for the semi-annual dividend of the Duplan Silk Corp. also received folders giving items of interest concerning the operations and history of the corporation. The folder points out that the dividend is the 22nd semi-annual one declared on the common stock since it was listed on the New York Stock Exchange; and also emphasizes that the company has shown profits for every year that has gone by since its organization.

The Georgia Campaign: Further details of the public relations advertising campaign being conducted by the Georgia Cotton Manufacturers Association have been made available to TEXTILE WORLD by T. M. Forbes, executive secretary. Over

One of the Georgia Association's 200 highway postings

80 newspapers are on the schedule, and highway postings in approximately 200 locations throughout the State are being used. "The campaign," states Mr. Forbes, "is primarily intended to awaken greater public consciousness of the value of the textile industry to the State of Georgia, by putting the facts before the people of all walks of life in the State. There has been a lot of misinformed criticism directed against factories and mills of all types in years passed, much of which is due to ignorance of the true facts. Through the medium of this advertising and publicity campaign, we are striving to give accurate and detailed information. When the people of the State have a true picture before them, we know from experience that their attitude becomes distinctly more favorable."

Anniversaries: Pequot Mills will celebrate its centenary April 6, with appropriate ceremonies. . . . Botany Worsted Mills will mark its 50th anniversary May 11. Plans for an elaborate celebration are under way. Letters from the company already carry attractive seals marking the anniversary.

McGraw-Hill Forum: A group of executives representing various lines of business and industry were guests at the McGraw-Hill Public Relations Forum held in the company's auditorium in New York Feb. 9. Speakers who introduced the subject included James H. McGraw, Jr., president of the McGraw-Hill Publishing Co.; Charles R. Hook, president of the American Rolling Mill Co. and chairman of the National Association of Manufacturers; and Paul Garrett, director of public relations, General Motors Corp. These addresses were followed by an off-the-record informal discussion.

CARPET MILL EMPLOYEES ON THE AIR

The Bigelow-Sanford Carpet Co., Thompsonville, Conn., is sponsoring a novel broadcast over station WSPR, Springfield, Mass. The program, heard every Saturday morning, has absolutely no advertising on it, but merely is being used in order that employees of the company might have a chance to show their own talents. Performers, consisting entirely of the company's employees, comprise a 21-piece orchestra, two fife-and-drum corps, several soloists, a German band, and other talent. Also featured on the program is a short talk by the "Master Weaver" —Frederick Furey—who has worked for the company for 65 years. The show is put on from the stage of the Franklin Theater in Thompsonville, and about 1,000 employees and their friends attend the broadcast every week. The picture shows part of the 21-piece orchestra. The backdrops are two rugs made by the company.

Paris Boosts Luxury Styles

Stresses bright colors in woolens and richness in silks

By BETTY E. HIRSCHBERG
Paris, France

AGAIN PARIS sets a luxury mode in fabrics for the coming spring and summer season. High colors, sumptuous effects are seen in fabrics; in garments, the mannish giving way to novelty variations in sport and street wear, and an out-and-out romantic flair taking control of evening dress.

Woolens are much in the forefront, featured in wider ranges of more brilliant colors than usual in this fiber. The Parisian passion for black may be on the wane since Rochas, Schiaparelli, Patou and Chanel have accepted the most unusual shades for jackets, tailor-mades and coats. Some observers argue that the darkening of the economic and political situation gives fabric makers a chance to embellish life with more colorful fashions.

In wool goods, stripes predominate and textures run the gamut from hard and firm to draping and spongy. "Isolene" is a soft fabric with angora mixture in a steep but not accented twill. Beach flannels are given a good play and there are printed and jacquard-woven fabrics in gay patterns. Washable woolens are stressed in some quarters and one house has an extensive wool-like line of fabrics made from rayon, cotton and staple fiber.

In the silk field, for evening wear are swishing and bewitching fabrics such as moire, stiff satins, taffeta, surah, brocades, tie-silks, etc. There is renewed interest in Soie Bordure, or bordered goods chiefly in printed designs. There is often a change in color between border and center of fabric, or in texture—the one dull the other brilliant. Several houses have pushed present printing techniques to the limit for rich or unusual effects; one such line is said to cost 100 francs per meter to print. Etched voiles are continued after several seasons of success. Small pattern effects are shown in yarn-dyed crepes and novelties in plaids, checks and stripes.

Patou's featured colors are "Astral-green," a pale green, and "Violoetia", a dark violet red.

1. Woolen novelty (E. Meyer) 2. Woolen-Worsted-Bedford Cord (E. Meyer) 3. Small plaid in synthetic (A Godde Bedin) 4. Yarn-dyed fabric with eight different colors in the checkered pattern (Castelain) 5. Silk serge for taileurs (Chatillon) 6. Novelty check (Castelain) 7. New three-dimensional print on rayon crepe (Olre)

Free Cotton Market

Held likely as result of legislation at current congress session

By PAUL WOOTON

Chief Washington Correspondent, TEXTILE WORLD

RESTORATION of a free cotton market at this session of Congress seems likely. A majority of Senators and House members at last are convinced that the maintenance of an artificial price restricts consumption at home and abroad. Cotton from the new crop will be kept out of the loan. Any bill likely of enactment will provide for the release from the loan of at least 1,500,000 bales and possibly as much as 2,500,000 bales. Care will be exercised, however, to release this cotton in such a way as will not demoralize the market. There is strong support for the proposal that not more than one-fourth of the loan cotton be released in any one year unless the price should exceed 75% of parity.

Much depends upon the amount of money that can be wrung from an economy-minded Congress. It is doubted if more than $300,000,000 can be obtained. That amount will have to cover wheat and corn as well as cotton. If the appropriation is divided as in the past, cotton would receive 40% or $120,000,000.

The Smith amendment to the Agricultural Adjustment Act of 1938, which are regarded favorably by producing and consuming interests alike, provide, in effect, for the payment to growers of 75% of parity. (The Smith bill [S. 1303] has just been approved by the Senate committee at the time of this writing.) A ceiling of 5¢ per lb. is placed on any benefit payment that may be made. Roughly, parity is 16¢. Were cotton to sell at 12¢ or 75% of parity, the farmer would receive no subsidy. If it sold at 10¢ the subsidy would be 2¢. If it sold at 7¢ the farmer would receive the full 5¢ of subsidy. If the price fell to 6¢ or below he still would receive only the 5¢.

There is great doubt that the money needed to meet that requirement could be obtained. It seems probable that the ceiling will be lowered. There again another limitation is encountered. In supporting marketing quotas in the referendum of last December the farmers assumed the continuance of the loan. If the loan program is discontinued it is felt that Congress in good faith should maintain the income of producers at the 1938 level. The great difficulty is to persuade the House to appropriate enough money to stop the flow of cotton into the loan fund.

While any additional subsidy will be fought in the House it is believed that a $300,000,000 appropriation can be counted upon. It can be demonstrated that a subsidy of 4¢ per lb. would cost no more than the continuance of the loan plan.

Because of the lateness of the season it is doubted if any large amount of loan cotton will be released under the optional feature of the Smith bill that provides for the release of loan cotton at 3¢ per lb. when the producer agrees to reduce his acreage under his allotment.

The provision that no subsidy can be paid unless the cotton is sold is expected to stay in the bill. The bill as introduced provided that no loan cotton can be sold until July, 1940, but this does not meet with favor. It is believed that authority will be granted to liquidate loan cotton gradually at any time after the approval of the bill.

Disposal of the 1,600,000 bales from the 1934 pool will be undertaken in a separate bill. This cotton undoubtedly will be distributed to the needy. Much of it probably will be made into mattresses but a part will be converted into cloth. Arrangements for manufacture doubtless will be made with mills and mattress plants.

Senators who were in the forefront of the effort to secure the loan are now just as anxious to prevent the accumulation of further stocks by the Government. It took the drastic decline in exports and the piling up of the unprecedented surplus to arouse them to the fallacies of such an artificial condition. With that has come the realization that domestic allotment or any price-fixing device is impractical without compensatory taxes on competing fibers, and a degree of regimentation that no one wants.

Congress has about reached the conclusion that the only way to deal with the farm problem is with outright subsidies.

Wide World Photo

Members of House and Senate Agriculture Committees meet with Secretary of Agriculture—(left to right) Seated: Rep. Marvin Jones of Texas, Chairman House Commitee; Sen. Ellison D. Smith, of South Carolina, chairman Senate Committee; Secretary Wallace. Standing: Senators Ellender of Louisiana and Bankhead of Alabama.

Cotton Council

Objectives outlined by Oscar Johnston —Smith bill analyzed

MEMBERS of the Southern Combed Yarn Spinners Association, and their guests, who attended the dinner meeting at Gastonia, N. C., Feb. 17, at which Oscar F. Johnston, president of the National Cotton Council, was the speaker, were fortunate in having an opportunity to hear newly pending cotton legislation analyzed by a man who probably understands the cotton situation as well as any other person in the country.

Mr. Johnston outlined the main provisions of the Smith Bill—and although not supporting or endorsing the bill as a whole, he pointed out those sections which had been approved to date by the National Cotton Council.

In addition, and of equal importance, was his definition of the objectives of the Council, which is representative of five interests: cotton planters, ginners, warehousemen, shippers, and seed crushers. Answering the questions as to why cotton manufacturers are not also represented, he pointed out that the textile industry represents only a part of the consumption of American cotton. Manufacturers of plastic combs made from linters, for example, and of possibly 10,000 other articles are also parts of the cotton industry. It is not the idea that the National Cotton Council should supplant the organizations that have been set up—such as the Cotton-Textile Institute. Incidentally, he said, instead of an annual Cotton Week he hoped that we would have 52 cotton weeks in the year.

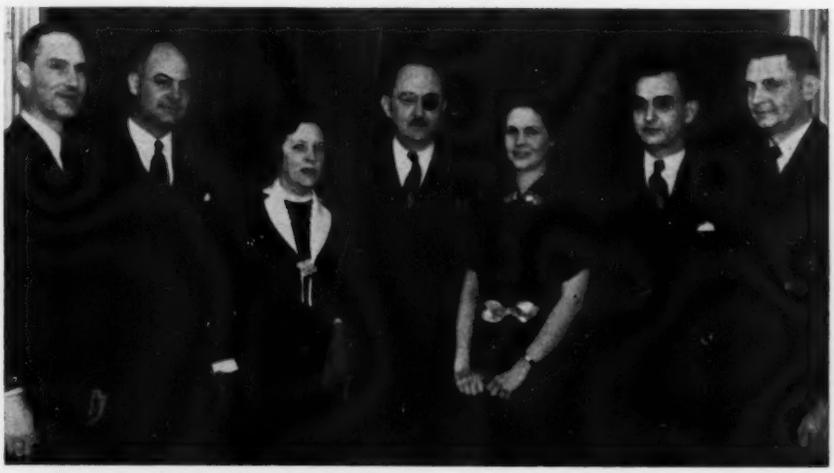
The Cotton Problem

Turning to the cotton situation, he referred to the present domestic consumption of 23 lb. per capita vs. 26 lb. five years ago—a lot of cotton when a nation of 130,000,000 people is involved. He sounded a stirring battle cry for a fight against the inroads of paper and other competing materials. He feels the cotton industry should bestir itself.

The Government, he pointed out, has tried to cut production to balance with consumption, but he feels it is time to begin tackling the problem from the other side of the equation: namely, increasing consumption.

He stated that the Council had recommended to Congress that loan cotton be released in volume not to exceed 2,500,000 bales a year for four or five years until the loan stock is liquidated; also that a subsidy be provided for the 1939 crop.

As to the loan, he emphasized, there is a loan and there will be a loan to protect the producer as long as there is a tariff to protect manufacturers against foreign goods.



Photograph taken at dinner in honor of Oscar Johnston given by Southern Combed Yarn Spinners Association, Feb. 17. Left to right: A. H. Fuller and W. D. Lawson, Gaston County representatives on National Cotton Council; Mrs. Oscar F. Johnston; Mr. Johnston, president, National Cotton Council; Mildred G. Barnwell, secretary, and J. C. Roberts, president, Southern Combed Yarn Spinners Association; William Rhea Blake, secretary, National Cotton Council.

The Smith Bill

Analyzing the provisions of the Smith Bill, he took up the question of the subsidy or adjusted payment, as he termed it. This follows the recommendations of the Council, he feels, and would let the 1939 crop take its own place in the world market and move freely.

With regard to the provision that farmers be allowed to repossess their cotton up to 30 points below the average of 10 markets, he stated that the provision had been written in belatedly that none of the loan cotton be released until 1940.

His personal judgment is that that is short-sighted and he feels that a sound compromise would be something to the effect that 500,000 to 750,000 bales be released this year, and 2,500,000 bales each succeeding year for five years.

He feels definitely that there is not enough to fear in the provisions of the Smith Bill to warrant giving up the whole measure, and consequently he personally would take the Smith Bill as is, particularly since he feels the important result will be the release of the 1939 crop as a free crop. He urged his listeners to get behind the bill and see that it is put through; otherwise he fears that there may be no remedial legislation at all.

Referring to the provision of the bill against a processing tax, he stated that the Council also agreed to this, and felt that the cost should be paid out of the general funds. To put a processing tax on cotton, he said, is unthinkable, particularly at a time when the cotton market is depressed and the industry fighting for its outlets.

Mr. Johnston was introduced by J. C. Roberts, president of the association, who presided. Mildred G. Barnwell, executive secretary, introduced the guests at the head table, who included Mrs. Johnston, Wm. D. Lawson and A. H. Fuller, Gaston County representatives of the Council; Frank Beatty, of Charlotte, also a Council representative; William Rhea Blake, secretary of the Council, and Douglas G. Woolf, editor of TEXTILE WORLD.

Value of Standards

Committee D-13's services to textile industry reviewed at twenty-fifth anniversary meeting

CELEBRATING the 25th anniversary of the founding of Committee D-13 of the American Society for Testing Materials, members of the organization gathered in Providence, R. I., March 1 to 3, for what proved to be a record-breaking meeting from the standpoint of attendance. The highlight of the meeting was the presentation of papers reviewing the history of D-13 and its services to the industry through the development of standard specifications and test methods for textile materials. Other features included a banquet held Thursday evening, and sub-committee meetings at which further progress in standardization was reported. All sessions were held in the Providence-Biltmore Hotel.

Outlining the history of Committee D-13, Horace J. Jaquith, of Minot, Hooper & Co., pointed out that in the early days of the tire-fabric industry there were many misunderstandings between the manufacturer and the consumer. There were no standard methods for testing to determine whether the fabric delivered agreed with the specifications given when the order was placed. Several times Edwin H. Marble, of Curtis & Marble Machine Co., and W. D. Hartshorne, of Arlington Mills, were called upon to settle disputes; and they concluded that these settlements should not be left to individuals, but there should be some higher authority upon whom the manufacturers could rely for assistance. Finally Mr. Marble appealed to Dr. Edgar Marburg, then secretary of the American Society for Testing Materials. As a result, a call was sent out for representatives to meet and see what, if anything, could be done. The cement manufacturers were also having difficulty with the sacks then used, and, therefore, the cement, bag, and osnaburg manufacturers were included in the call.

Organization of Committee D-13 was authorized by A.S.T.M. in 1914. The first meeting was held in March, 1915, in New York. Mr. Hartshorne was chosen chairman; Dr. D. E. Douty, of United States Testing Co., was chosen secretary. In 1917, under the chairmanship of Prof. George B. Haven, of Massachusetts Institute of Technology, six sub-committees were formed. The first tentative general method for testing cotton fabrics was submitted by Committee D-13 to the Society in June, 1918. Between 1918 and 1928 sixteen additional sub-committees were either formed or authorized.

In 1929, under the leadership of William H. Whitcomb, a general reorganization took place, dividing the Committee into two groups; those designated as "A" covered the fibers and their products; those designated as "B" covered test methods and machines; nomenclature and definitions; bleaching, dyeing, and finishing; sampling, etc.; and papers. To date, thirteen sub-committees and eighteen sections have been organized. Membership has grown from 19 in 1915 to 212 at the present time.

The most radical departure from the original field of operations of Committee D-13, which at first dealt only with mechanical or industrial fabrics, came in March, 1936, when Sub-Committee A-6 on Household and Garment Fabrics was formed.

Last year Committee D-13 inaugurated a research project on the evaluation of the handle of fabrics; this work will be carried out at the National Bureau of Standards, under a Fellowship plan.

Benefits Derived

Tracing how and to what extent the textile industry has benefited from standards adopted by Committee D-13, Prof. Herbert J. Ball, of Lowell Textile Institute, present chairman of the Committee, first explained how suitable specifications and test methods are developed through the cooperation of all interested parties. Methods of test are considered acceptable only when it has been shown that they give reproducible results when performed in various laboratories and by different operators. Specifications adopted must not be ambiguous and must supply the needs of the user of the products to which they apply.

To date 50 standards have been adopted. Several of these, such as the methods for determining twist and for determining fastness of dyed and printed textiles, are widely known and accepted throughout the textile industry. These have had an important influence on every producer in the field. Others have been equally effective in some particular branch of the industry. Thus, as a result of the work of Committee D-13, textiles employed in making tires are now produced to meet rigid specifications. Test methods for determining fineness of wool tops have been accepted by the Wool Associates of the New York Cotton Exchange. A method for determining grease content in raw wool is used by the Government in setting tariffs. The rayon industry as a whole has adopted standards established by the Committee for both continuous filament rayon and rayon staple. A new sub-committee is working on standards for glass fibers and textiles made therefrom. Some of the definitions adopted by the committee have proved useful in compiling patents.

How Standards are Used

Standards developed by Committee D-13 are used in various ways. They are employed to settle disagreements between buyers and sellers; they act as guide posts to testing organizations; they have stimulated development of new and better testing machines; they are used by mill research and testing laboratories. Meetings of Committee D-13 are clearing houses for interchange of technical information. Work of the Committee has been effective in speeding up research by individual companies. Development of the technique required for setting up standards has helped units in the industry to set up their own standards and has eliminated unsound methods. Attendance at meetings has given members of the Committee a broader knowledge and has contributed to their intellectual growth and maturity.

Guest speaker at the general session Thursday afternoon was Prof. E. K. Strachen, of Brown University, who discussed the origin of heat in ageing of fabrics printed with vat colors. At a meeting of Sub-Committee A-3, Dr. Wollner, of the U. S. Treasury Department presented a paper on "Sampling of Bales of Imported Australian Skirted Wool." At the banquet several of the past-chairmen of Committee D-13 spoke briefly on activities of the organization at various stages in its history; F. S. Mapes, of General Electric Co., was toastmaster.

A Textile Family at Home

1. The Reeses' home, for which Mr. Reese pays 25¢ per room per week, and also gets free water and sewage facilities. Mr. Reese is pruning his trees while Sis kibitzes.

2. Pa and elder daughter try a duet on the family piano and with the fiddle. Junior is an interested listener and probably has musical ambitions of his own.

HERE IS a glimpse at a North Carolina mill-worker's family, the Reese's, in Gaston County, N. C. Mr. Reese has an average job in a combed yarn mill.

This pictorial presentation is made possible by the joint public-relations activity of the Southern Combed Yarn Spinners' Association, of Gastonia, N. C., of which J. C. Roberts is president, and the Department of Conservation and Development of the State of North Carolina.

A total of 150 photographs of textile mill life were taken in Gaston County under the direction of Mildred G. Barnwell, executive secretary of the spinners' association, and are being made available at cost to newspapers, business publications, national magazines, photo services, etc. In addition they are to be assembled in a booklet, to be prepared under the auspices of the Southern Combed Yarn Spinners Association, and widely distributed as a positive and effective answer to the mis-statements about the southern textile industry, circulated out of misinformation or mal-intention.

This latest enterprise of the combed yarn spinners is public relations at its best.—*Editor.*

5. After supper in a textile home: Mr. Reese, like thousands of other fathers, looks over a school publication brought home by his children. The Reeses have reared 10 children in this village; all are either in school now or already have high-school diplomas.

3. Sis helps Mrs. Reese start supper in a modern kitchen. Mr. Reese has worked 20 years in the card-room of the Cramerton Mills.

4. The Great American Family is almost the Great Textile Family. The Reeses at supper table. (NOTE: *It is not "dinner" in Gaston County.)*

Defects Defined

Weaving imperfections cause less trouble when mill and selling office speak same language

By S. C. VENEY

NEW YORK office calling, Mr. MacKenzie," says the mill manager's secretary.

"Hello?" from the manager, as he lifts his telephone receiver.

"Say, Mac, Greene Bros. have turned down the last pieces of No. 476 you sent out."

"What's the matter with them?"

"Oh, everything . . . !" And here follows a whole string of imperfections, some of which may be correct and others of which never could have happened.

"Well, pick out a bad piece and send it back so we can look at it."

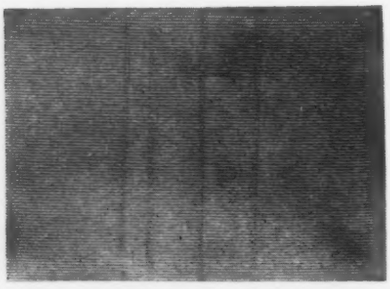
Nothing is more educating and revealing to overseers and others in a mill than actually to see defective fabrics and thus have demonstrated the fact that certain defects, minor in the gray cloth, become of major importance in the finished fabric. However, in a good many cases a lot of expense—shipping charges, telephone calls, telegrams, and postage—could be eliminated if both mill and selling office spoke the same language.

How often it happens that somebody, when describing weaving imperfections, gives a wrong interpretation—says broken picks are mispicks, cracks are barré marks, or shuttle marks are warp streaks. Any mill under good leadership will appreciate prompt and accurate complaints, no matter how trivial the imperfections may be. This is constructive criticism. But imperfection complaints should be prompt and accurate. Misleading reports result in much work and delay, to no avail. Suppose, for instance, the selling office complains about mispicks when the defects in question are actually broken picks. Immediately upon receipt of the complaint the mill starts to overhaul the head motions of the affected loom or looms, while probably the real cause of the imperfections was eliminated days ago.

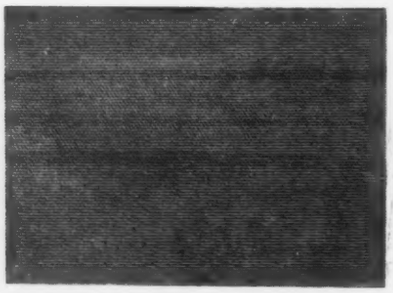
The following compilation of most frequently noted imperfections in broad goods will, it is hoped, prove of some help where conditions as quoted above exist. Since the causes of the various defects are described, as well as their appearance, the compilation should also assist mill men quickly to determine causes of defects and, hence, to remedy them.

In extreme cases it may even be advisable to weave a few yards, incorporate in this cloth all the major imperfections, mark all defects correctly, send half to the selling office, and retain the duplicate half in the mill manager's office. In this manner a uniform and fool-proof reference will be available. This undoubtedly will help to reduce expenses due to misunderstandings and arguments.

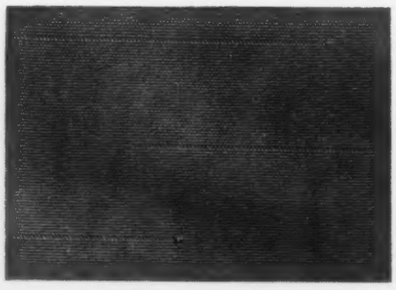
[To make more useful the information contained on these two pages, TEXTILE WORLD will be glad to send a free copy, as long as the supply lasts, to the selling office of any mills which desire it. In applying, give name and address of the individual to whom this material should be mailed.—*Editor.*]



Warp streaks—*Appearance:* Dark or light lines running warpwise in a shadow effect. *Causes:* Tight heddle-band hooks binding heddles, incorrect setting of sections in warping, insufficient paper on beam, different yarn lots not spotted evenly, rough heddles or drop wires, creel not centered while warping, sharp and cut section or lease reed on warper.

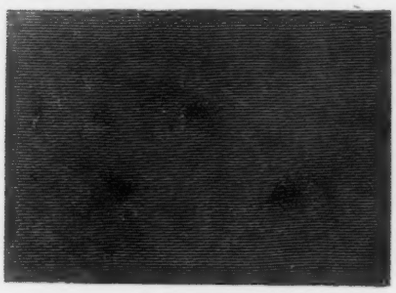


Barré—*Appearance:* Bands running fillingwise, due to variation in the number of picks per inch. *Causes:* Improperly working let-off, fabric slipping on take-up drum, pickwheel missing, tight or unevenly worn bearings in take-up motion, loose beam heads, warp beam or whiproll not true, bent beam gudgeons, loom not resting solidly on floor.

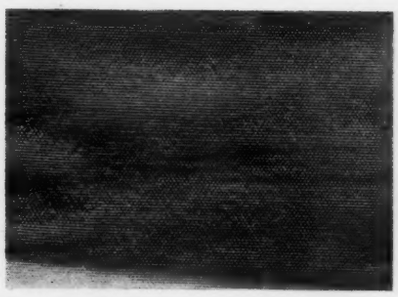


Broken picks—*Appearance:* Similar to mispicks, but generally extending only part way across the fabric. Usually showing a slug of rebound filling at beginning of broken pick. *Causes:* Cut shuttle-eyes or tension rings or pins, sharp center-fork prongs, sharp feeler tip, rough boxes, top shuttle riding over filling of bottom shuttle, rough shuttles, shuttles not entering boxes straight, poor quilling, quill loose in shuttle, quill not centered in shuttle, rough pickers, edges cutting filling.

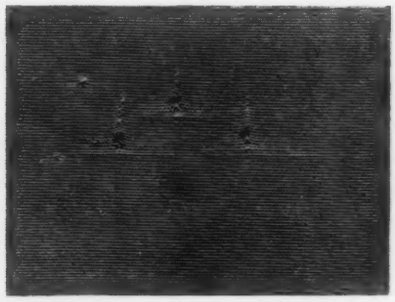
Tight picks—*Appearance:* Slight ruffle across the width of the fabric also it may be found that sometimes edges are pulled in. *Causes:* Fur in shuttles sticking out where the filling might catch on it, rough spots on quills or cops, large knots tied in yarn either by redrawer or quiller, yarn ballooning too much as it comes off quill, yarn not set properly, long tails along edge of cloth after a shuttle change catching on some gear, knives not sharp (automatic looms).



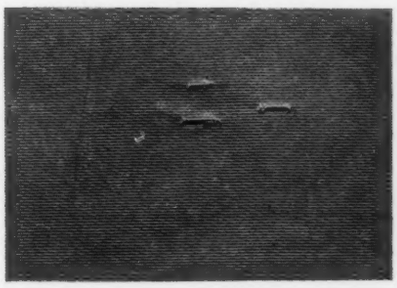
Finger marks—*Appearance:* Irregular spots showing slight variations of pickage. *Causes:* Spreading of warp ends while loom is in motion, pressure upon cloth between reed and take-up drum.



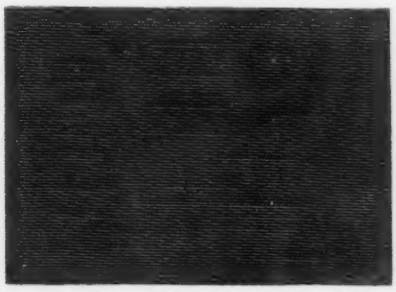
Rough—*Appearance:* Cloth has a rough surface, much like sandpaper. *Causes:* Shuttle rebounding in box, shuttle tension jerky or too loose, harness not timed correctly, wild twist in filling.



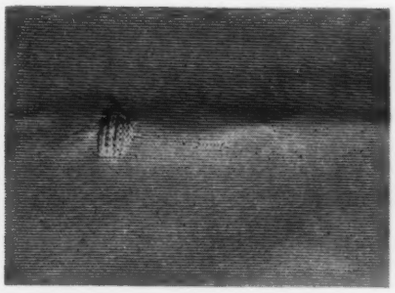
Hang picks—*Appearance:* Holes of various sizes, triangular in shape. *Causes:* Winder, warper, or weaver not using correct knot when tying up ends; harness timed too early; shuttle tension too loose.



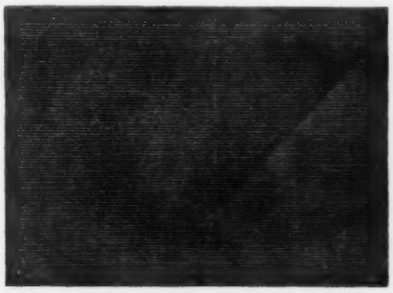
Slugs—*Appearance:* Lumps in filling, giving appearance of nub yarn. *Causes:* Soft quills, lively filling, too much pick, shuttle rebounding in box, shuttle tension working jerkily, rough pickers, obstruction on lay between box and selvage.



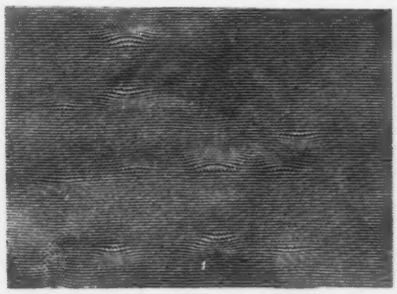
Shuttle marks—*Appearance:* Fine lines in filling direction caused by injured warp ends. *Causes:* Shuttle not flying straight, bottom shed too high, shed opening too low, shuttle entering too late or too early.



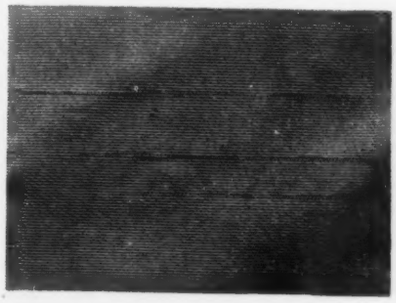
Floats—*Appearance:* Picks and warp ends not interlacing. *Causes:* Ends breaking out, unclean harness. (If possible, broken ends should be made to snap out of harness and reed to prevent tangling with neighboring ends.)



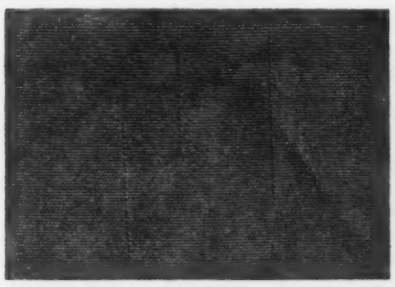
Creases—*Appearance:* Irregular crease-marks, running in various directions. *Causes:* Rough handling of fabrics, cloth not started straight on cut roller, cloth too wide for the loom. (Use of curved rods, highest in the center, will help prevent creases.)



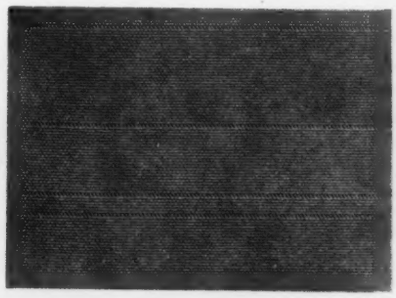
Tear drops—*Appearance:* A "watery" appearance, most pronounced in taffeta and grosgrain weaves. *Causes:* Not enough warp tension, incorrect timing of harness, overslashed warp, uneven penetration of sizing solution, low tension when beaming, loom running too fast.



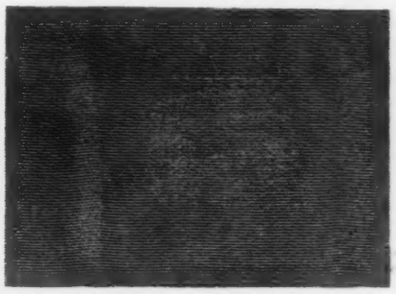
Cracks—*Appearance:* Light open marks extending either partly or entirely across the fabric. *Causes:* Loose crank-arm or crankshaft bearings, bad rocker-shaft bearing, clutch not grabbing promptly, loom banging off, too much warpwise play in reed, improper let-off.



Broken warp ends—*Appearance:* Soiled cloth, poor production, broken weave wherever an end is missing. *Causes:* Rough shuttles, cut heddles or reed, tight reed, improperly-lined-up whiproll, shedding too high, wrong timing of harness, overslashed or underslashed warp, warp riding lay.



Mispicks—*Appearance:* An interruption of the weave across the entire width. *Causes:* Mistake in pattern chain, vibrators or hooks not working freely, loom turned backwards before starting, starting loom on incorrect pick after ripping back, bent or loose pattern pins, worn links, head motion out of time.



Fuzzy—*Appearance:* Broken filaments, giving a hairy appearance to the cloth. *Causes:* Underslashed warp; rough drop wires, heddles, or reed; warp rides lay; glass rod back of reed is cut; goods slip on take-up drum; rough shuttles; cut glass dents or reeds in warper; oversoaked silk; yarn burnt in slashing.

Raw Silk in Bull Market

Strong position plus Japanese speculation lifts prices 25% in two months

RAW silk has been staging a spectacular bullish demonstration. Since the first of the year the rise in New York has been over 25%, and, at that, this rise has lagged behind the Yokohama figures.

Causes for the rise are variously given as follows: Japanese speculation in raw silk as a hedge against inflation; increasing domestic consumption in Japan of raw silk; increased interest among American weavers (with the rise this has diminished to a point where many are now curtailing); strong statistical position, with stocks declining and prospective crops not excessive; Japanese Government interest in getting higher values for their chief export item because of its relation to their foreign exchange.

The Japanese Bourses at Kobe and Yokohama closed on Mar. 1, in the middle of a session, to permit brokers to catch up with margin calls from hard-pressed shorts, and remained closed on Mar. 2. They reopened on Mar. 3 with a decline that gave relief to those who feared the situation wholly out of hand.

Several months ago the Japanese authorities got together under their "Stabilization Act" and set 950 yen per bale on grade D as the 1939 ceiling on prices at which the Government would begin to sell its stabilization stocks. Apparently this check on a wide upswing was of little effect, for on Feb. 24 grade D crossed 1,000 yen for first time since June 1933 and went on till 1,080 was touched on Mar. 1, putting prices back to levels not seen since 1931.

Importers and users of raw silk in this country face a puzzling situation. Many have let the market get away from them since they could not believe that the admittedly strong silk situation at the end of last year could actually develop such a price rise as has been witnessed. Knitters of unbranded hosiery lines are strengthening their prices, the rise from the opening of the season being estimated at nearly 25¢ per dozen. Branded full-fashioned prices will apparently be held to April 30 or until fall prices are named. Weavers have been left behind by the rise and are curtailing their production of silk goods. Rayon producers look with interest on the situation in the belief that it gives them a better opportunity than otherwise to launch the numerous improved fibers coming on the market this year.

Statistically silk has been strong since the last quarter of last year. Monthly mill takings in 1938 averaged 34,316 bales, takings for January were 40,816 and for February 33,219. Stocks in this country at end of month have dropped from 53,278 at end of December to 38,178 at end of February, and February's imports at only 22,843 bales, were the lowest for over a year. In transit from Japan at end of February were only 17,500 bales against an average monthly "in transit" figure for 1938 of 30,800. Japanese statistics indicate low stocks there, with total reported on Feb. 28 of 42,400 bales, of which 32,400 were held by the Government.

New York prices on Crack XX spots touched $2.32 on Mar. 2 and were at $2.27 on Mar. 3. On Feb. 3 this silk was quoted at $2.00 and at the close of December it was $1.82½. The last figure was high for 1938, while the low for that year was about $1.55.

Those who have not been hurt by the raw silk rise look on it with interest as showing that even in these times a bull movement is possible, at any time, to develop in a basic raw material.

Textile Packages Win Top Awards

THE 1938 All-America Package Competition, sponsored by *Modern Packaging Magazine* brought numerous entries from the textile field. Three among the prize winners are shown.

Top honors in the Counter Display Group went to the smart case, shown at center, which houses the Esmond Mills' Royal Ermine Blanket. The frame is walnut finish wood with sliding rigid transparent cover. It was designed and made by Pilliod Cabinet Co., Swanton, Ohio. Miniatures are supplied to Esmond salesmen.

The Martex towel re-use hat box container, shown at right, landed first prize in the Rigid Transparent Container group. Marketed by Wellington Sears Co., this hat box is left free of all advertising material when the towels and label are removed. Box was designed and made by Union Specialty Co., Plainfield, N. J.

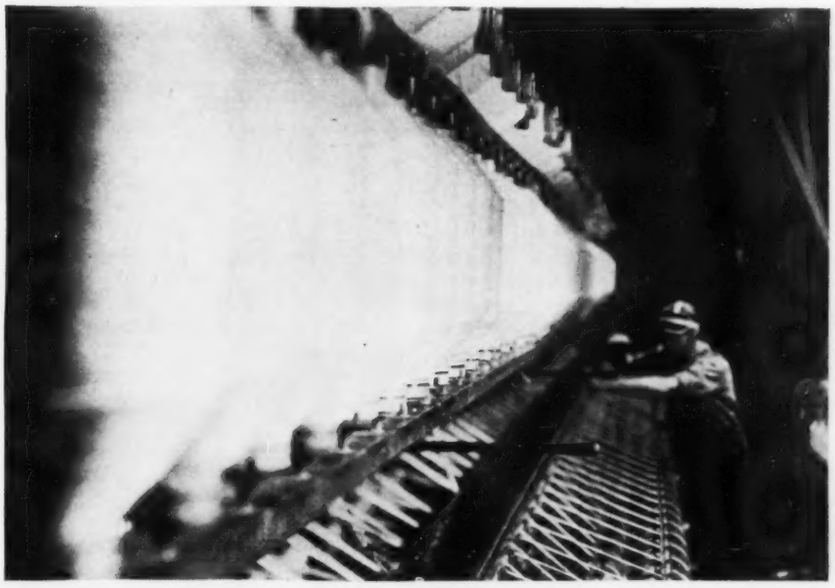
Award in the Fiber Can Group was won by the Firstaid Sanitary Absorbent Cotton Dispenser (at left) of the United Drug Co., Boston, with metal cover and adjustable cutting blade. The United Drug Co. executed the job using cans and labels supplied by the R. C. Can Co., St. Louis, Mo.

Spinning Rayon Staple

Speeds and settings which result in good quality yarn

By J. L. BRANNAN

SPINNING of rayon staple by cotton mills is still in somewhat of an experimental state. While some mills are spinning staple and doing a good job of it, no doubt, there are other mills that are having trouble in spinning staple, particularly as regards speeds and settings. I know that some information on speeds and settings would have been a great help to me when I first started handling rayon staple. Over a period of time, we have obtained such information, which has given good results with 1½-denier, 1½-in. viscose staple rayon. This information is outlined below, with the hope that it may be of some help to others who are running this type of fiber or who plan to run it.



"We get good results with our speeds and settings"

Only One Beater Used

Since rayon staple does not require any cleaning, I use only one beater, a carding beater, and run it at a speed of 600 r.p.m., while I run my fans at a speed of 1,000 to 1,100 r.p.m. We were having trouble in pulling pins from the laps; so I tapered the lap pins ¼ in., from the pulling end to the other, and eliminated the trouble. I turned the grid bars upside down and set them as closely as possible, and set the beater 3/16 in. from the feed roll. With these speeds and settings, running 5,000 to 7,000 lb. of fiber per day in 14-oz. laps, we removed only about ½ lb. of waste from beneath the picker every two weeks.

On our cards, which are 40 in. on the wire, we run a 52-grain sliver. The cylinder diameter is 50 in. and the cylinder speed 165 r.p.m., the doffer diameter is 27 in. and its speed 6 r.p.m. The top flats travel at a speed of 3 in. per min. The speed of the lickerin is 350 r.p.m. We set the feed plate to the lickerin 0.012 in., lickerin to cylinder 0.007 in., and cylinder to doffer 0.007 in. We took out all the mote knives, and set the lickerin to the lickerin screen 0.17 in. at the blank part, and 1/16 in. at the nose. Cylinder screen settings are as follows: to lickerin, 0.022 in.; to cylinder at center, as closely as possible without rubbing; to cylinder at doffer end, 1/16 in. Top flats are set 0.010 in., doffer comb to doffer is set 0.034 in., and top and bottom front plates and top and bottom back plates are set as closely as possible without rubbing. The cards are run 80 hr. a week; yet fly is removed only once in 14 or 15 days, at the time the cards are stopped for grinding, and we get only ½ to ¾ lb. per card. Two card tenders run 75 cards and do their own stripping.

We have a 1¼-in. front roll on our drawing frames, running at a speed of 225 r.p.m. for both breaker and finished drawing. Top rolls are cork covered and set as follows: front to second, 1 13/16 in.; second to third, 1¾ in.; third to back, 1⅝ in. The reason for these particular settings is that the fiber in some shipments is 1 9/16 in. long instead of 1½ in. Tenders run 36 deliveries each.

The front roll of the slubbers is 1¼ in. in diameter and runs at a speed of 185 r.p.m. Roll settings are: front to middle, 1 11/16 in.; middle to back, 1¾ in. We are making 0.80 hank slubbing, using a twist of 0.75 times the square root of the hank. With this twist it was necessary to cut the spindle speed down to 475 r.p.m. Each slubber tender runs two frames of 76 spindles each.

The intermediates have a 1¼-in. front roll, the speed of which is 108 r.p.m. Settings of rolls are the same as those used on the slubbers. Our intermediate roving is 3.00 hank and has a twist of 0.95 times the square root of the hank, which requires a spindle speed of 700 r.p.m. Frame tenders run three frames of 108 spindles each.

Speeds for Spinning 30s

We use a 1-in. diameter front roll with a speed of 135 r.p.m. for spinning 30s warp. The frames are the conventional three-roll type and have a jump-saddle light middle roll, with the rolls closed. Calf-skin covered rolls are used. For the 30s warp we use a spindle speed of 8,200 r.p.m., and for filling we use a speed of 6,000 r.p.m. A twist of 3.50 times the square root of the number is used for warp, and twists of 2.75 and 3.00 times the square root of the number for the filling. Our yarn numbers range from 18s to 30s; we make 18s to 20s from 3.00-hank single roving, and higher numbers from 3.00-hank double roving. I find that I can use longer drafts with rayon than with cotton—I use drafts of 16 to 17. Assignments made are 12 sides per spinner.

Degumming Hosiery

Special methods for special cases

OCCASIONALLY the ordinary methods for degumming silk hosiery fail to give satisfactory results, and special procedures must be employed. Such was the case recently in a hosiery mill which had run into considerable trouble from variation in shade. Not only was there a marked variation in the shade of stockings dyed in the same bath, but also some variation in different parts of the welt of the same hose.

The trouble was traced to incomplete removal of the oil used on the needles of the machine. This oil was a stainless, white mineral oil, having a viscosity of over 300 sec. Saybolt at 100°F. Ordinary degumming methods cannot be expected to remove this type of oil.

If only a small amount of heavy oil is on the fabric, addition of approximately 3 to 5% of pine oil soap to the regular boil-off bath will usually remove the oil. However, when a large amount of heavy lubricating oil is present, the pine-oil may not take care of it. In this case treatment of the hosiery with an emulsified solvent will help to remove the oil and insure satisfactory processing. Previous to degumming, a hot 10-min. run at about 140°F. using 5 to 10% of solvent compound (based on weight of goods) will dissolve and emulsify the heavy needle oils to such a degree that the subsequent boil-off will leave the hosiery in satisfactory condition for dyeing.

If the dyer knows that a heavy needle oil has been used, he can usually devise some method to remove it before dyeing. However, use of such oils is not advisable. The National Association of Hosiery Manufacturers has established certain specifications for a needle oil, and two of the requisites are that the oil should be a highly refined product of approximately medicinal grade and should have a Saybolt viscosity of not over 100. Many manufacturers who have used 100-viscosity needle oils have complained that it is too light and runs off the needles too rapidly. Therefore, they prefer to use blended oils of the non-fluid type, which do not run off the needles too rapidly, but which are readily scoured from the goods.

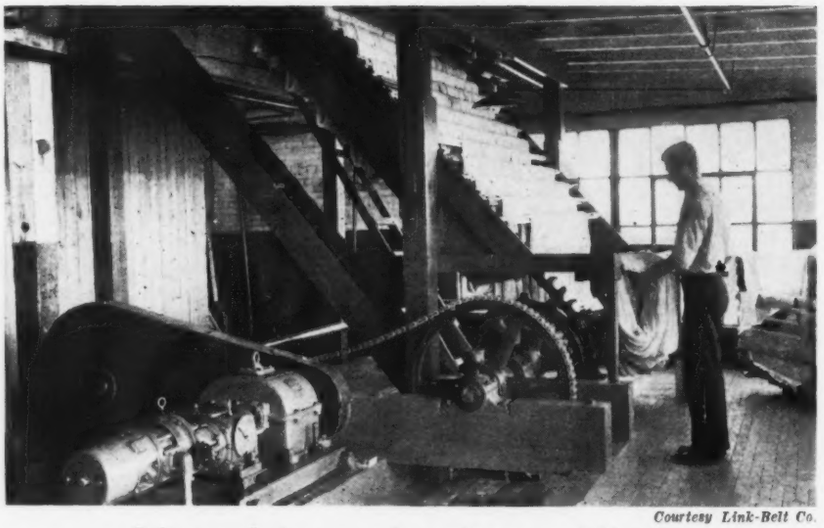
Continuous Wool Bleaching

Skein conveyor eliminates excess work

APPLICATION of the continuous-operation principle to sulphur-bleaching of woolen yarns in skein form was made possible by the installation several months ago of a special type of conveyor at S. & M. Dye Works, Inc., Philadelphia. In its present form the process eliminates trucking of skeins up to, into, and out of the various sulphur rooms. Instead, the yarns are loaded on to the conveyor at the ground floor level, carried upward 37 ft., then horizontally near the roof of the building for 180 ft., and finally down again to the point at which the yarn is removed from the conveyor.

Due to the injurious effects which sulphur dioxide gas has on metals and machinery, it was necessary to give special attention to this fact when engineering the equipment.

The idea for making the bleaching a continuous process was conceived by L. H. Mason, president of S. & M. Dye Works; building construction incident to housing and supporting the equipment was designed by Jean Paul Richter, Philadelphia architect; and the conveying equipment was designed and built by Link-Belt Co. The accompanying description is based on an article which appeared in a recent issue of *Link-Belt News*.



Courtesy Link-Belt Co.

Delivery end of conveyor for continuous wool bleaching

The conveyor is loaded by attendants who place long poles, each containing about 10 lb. of yarn, between two strands of steel rollers chain, in such a manner that they rest on links which are exactly opposite each other. Loading is rather close, this being desirable to prevent undue escape of fumes from the bleaching compartment. At the discharge end of the conveyor, the bleached skeins are removed by what amounts to merely a reversal of the loading technique.

Normally, the conveyor is operated at a speed of 6 in. per min., but for different grades of wool, and because of conditions prevailing in the sulphur chamber, the rate of conveyor travel is occasionally reduced to only 4 in. per min., and at other times is speeded up to as much as 24 in. per min. A PIV variable-speed transmission, coupled to a double-reduction herring-bone-gear speed reducer, drives the conveyor, and makes it easy to obtain any desired speed.

Combination Yarns

Twist setting, warping, and beaming require close attention

By JOHN N. BACCASH

FOLLOWING the twisting processes, after 10 to 15 turns have been given, combination yarns composed of acetate and viscose are steamed, as are other crepe yarns, in order to set the twist and kill the liveliness of the yarn.

A lapse of about 4 hr. between twist setting and redrawing will enable the yarns to conform to room temperature and also prevent whatever danger there may be of straining the yarn excessively if it is redrawn in a damp state. A bobbin of firm, but not hard, mold should be the aim for these yarns.

Porcelain guides should frequently be inspected for cuts, and cams and guides should be precisely adjusted to prevent over-running of the yarn to the sides of the bobbin. No operator should be permitted to handle more than 30 to 40 spindles on these coarse and rapidly moving yarns. None but the weaver's knot should be tied, and that not before a yard or so of the end of yarn is removed, to eliminate any possibility of slack or uneven twist. Slub catchers should not be used, because the coarseness of these yarns makes them impractical; also, the yarns are comparatively clean running. Operatives hands should be free of grease and oil and bobbins of yarn should arrive at the warping frame or quilling machine as spotless as possible.

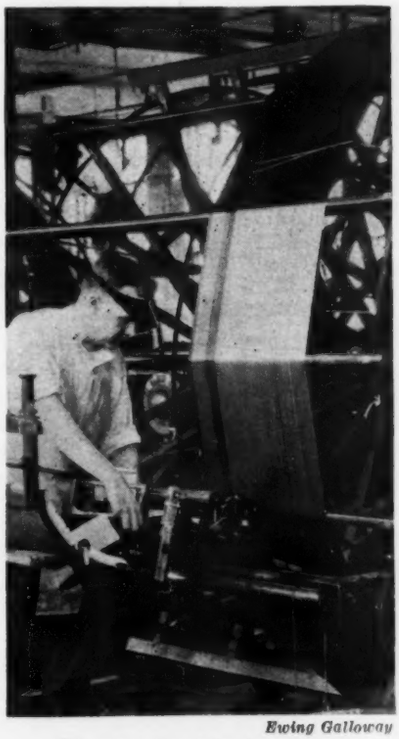
Warping

Warps for combination-yarn fabrics are usually made on the silk system of warping, using a horizontal creel of approximately 500 spindles, in 16-spindle sections. Electric stop-motion attachments eliminate the necessity of pulling back for lost ends. This, in turn, minimizes the hazard of a frayed section, which might be caused by the friction of yarn against reed when and if a section was pulled back by an operator.

Careful attention should be given to both crossing and section reeds. Both should be rubbed smooth and polished; this is an important precaution, since the acetate portion of the combination yarn can easily be chafed by cut or rusted reeds.

It is advisable to use soft-twisted lacing cord, preferably of bright viscose, for leases. This type of cord, really an embroidery yarn, is admirably adapted for use on all synthetic-yarn warps and does not leave any impression on the section or chafe the ends forming the yarn sheet.

Sections should be laid adjacent to each other, no allowance for spreading being necessary. Too great spacing between sections will cause slack ends at the borders of the sections



Ewing Galloway

Warping Combination Yarns

and also dreaded section marks, which invariably become apparent in all pieces of the particular warp when they are dyed and finished.

Erratic humidification can work havoc with partly laid warps left on frames overnight. If possible, it is good policy to have operators complete and attach the section being worked on to the yarn sheet which is already laid, before leaving a frame for the day. Of still more advantage, providing it fits into the production schedule of the mill, would be to have warps completed and beamed by the end of each day.

It is preferable that knots be avoided as much as possible. This will depend, of course, on the efficiency of preliminary processing and the size of bobbins on the creel. Before starting a new section, operators should make sure the smallest bobbins, in terms of yarn content, contain sufficient yarn to carry them through a full section. Better yet, all bobbins less than half full should be replaced with full bobbins at the finish of a section, and the former sent to the quilling department for conversion into quills, since, in many instances, the same yarns are used for both warp and filling. These few precautions will greatly help in avoiding knots, which not only detract from the appearance of woven fabrics but seriously affect production efficiency.

Caution should also be exercised against the occasional disarrangement of the proper sequence of combination yarns in a warp, either by replacing a Z-twist end with an S-twist end or by piecing reverse twists instead of like twists. Sometimes such mistakes are caused by indistinct contrast in the tinting of the viscose crepe and in the yarn. Very often poor lighting at the operator's stand makes it difficult to distinguish between twists. Occasionally individual carelessness is to blame. The main point to be remembered is that disarrangement of twists in a warp originally laid out one end Z-twist, one end S-twist, places two ends of like twist next to each other. The defect is difficult to see at the loom and frequently is not corrected before one or two pieces have been woven. Yet, in finished cloth the appearance of this flaw is so marked that it is sometimes referred to as railroad tracks. After shrinkage and dyeing, the two ends of like twist fall into the same groove in the fabric, instead of being counterbalanced as intended by the S and Z arrangement.

Beaming

A well-laid warp can be spoiled by poor beaming, just as a poorly made warp can be considerably improved in the hands of a skilled beamer operator. Because of the sparse construction of combination-yarn warps they beam quite easily; the care to be exercised lies in the proper weighting of the frame and the removal of extraneous waste and slubs which might have been overlooked in the laying of the warp. Too much weight on the frame friction-band may stretch the yarn and result in a fabric lacking proper elasticity. Too little weight may result in a soft and slackly wound beam and become the cause of slack ends, shiners, and other defects at the time of weaving. Beaming paper should be applied as often as is necessary to procure a moderately firm beam.

Grease in Scoured Wools

Rapid test method for quantitative determination

BY JOSEPH W. CREELY
Eavenson & Levering Co.

A NEED has risen in the wool trade for a better and quicker means of determining grease in wools. Petroleum ether, diethyl ether, and carbon tetrachloride appear to be the most popular solvents in use for this purpose. Of the three, petroleum ether is the most stable chemically. Diethyl ether tends to form peroxides and acids on long standing, while carbon tetrachloride forms some hydrochloric acid in the presence of moisture and other impurities; e.g., metallic iron. We have found that of the above-mentioned solvents used hot in a Soxhlet extractor, the first gives lower results than the other two. Carbon tetrachloride gives the highest results. Diethyl ether has been selected as the correct solvent for use in grease extraction by the A.S.T.M.

Work in our laboratory has shown that the petroleum ether extracts contain as much lanolin as the diethyl ether or the carbon tetrachloride extracts, but less of the free fatty acids and other material. For this reason, we have used petroleum ether in our Soxhlet determinations of grease in scoured wools.

We were led to try a quicker procedure because of the amount of time consumed in extracting the samples in the customary Soxhlet apparatus. With this in mind, the following experiments were made:

Five-gram samples of carded and well mixed wool were weighed out to the nearest 0.1 gram. They were placed in 500-ml. Erlenmeyer flasks, 300 ml. of solvent was added, and tin foil covered stoppers were tied on. The flasks were then shaken on a machine at room temperature. After the required time, they were removed and 250 ml. of the solvent was poured off into 300-ml. flasks, from which the solvent was recovered by distillation. When only a few milliliters remained, the solvent was filtered through an asbestos filter into a tared flask. The solvent was then evaporated to dryness on a steam plate and the flask heated 15 min. in an oven at 100 to 105° C., cooled in a dessicator, and weighed. The apparent grease content in percent (Table I) was calculated by multiplying the weight in grams of the grease obtained by 24, derived as follows: (300 ÷ 250) × (1 ÷ 5) × 100.

The remaining 5 grams of wool, together with the 50 ml. of solvent in the flask, was transferred to a Soxhlet extractor and extracted 20 times with petroleum ether. This extract was filtered, evaporated, and weighed. The weight of grease obtained previously by shaking added to this weight is the total grease extracted from the 5-gram sample. Multiplying the weight of the total grease extracted by 20 (derived as follows: 100 ÷ 5) gives the Soxhlet method grease in percentage.

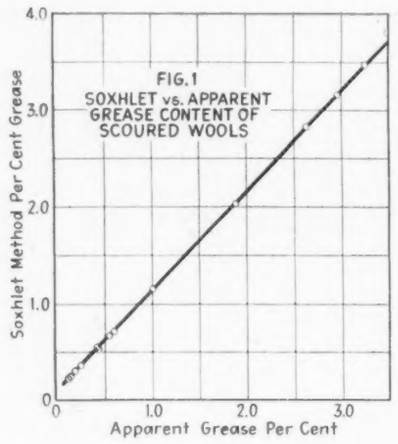


Table I. Effect of solvent and time of shaking on grease found

Solvent	*Time of Shaking (Minutes)*	*Grease found (grams)*	*Apparent grease content (Percent)*
Petroleum Ether	10	0.0076	0.162
Petroleum Ether	30	0.0071	0.154
Petroleum Ether	120	0.0074	0.161
Carbon Tetrachloride	10	0.0070	0.148
Carbon Tetrachloride	30	0.0063	0.131
Carbon Tetrachloride	120	0.0069	0.146

Table II. Comparison of results of new method and Soxhlet method.

Apparent Grease (%)	*Soxhlet Method % Grease*	*Difference*
0.16	0.24	0.08
0.17	0.26	0.09
0.19	0.32	0.13
0.27	0.39	0.12
0.43	0.56	0.13
0.45	0.53	0.08
0.56	0.67	0.11
0.61	0.72	0.11
1.00	1.15	0.15
1.88	2.03	0.15
2.62	2.76	0.16
2.96	3.16	0.20
3.24	3.47	0.23
3.51	3.79	0.28

Table I shows that results are independent of shaking time in the periods tried. Petroleum ether gives higher results than carbon tetrachloride; therefore in further work petroleum ether was chosen as the solvent and 15 min. as the shaking time.

The procedure adopted was as follows: Five grams of sample weighed to the nearest 0.1 gram is shaken in a 500-ml. Erlenmeyer flask containing 300 ml. of petroleum ether. The flask is then shaken on a machine at room temperature for 15 min. 250 ml. of the petroleum ether is poured off into a 300-ml. flask and evaporated to small bulk. The remaining solvent is filtered through an asbestos filter into a tared flask. The solvent is evaporated on a steam plate; and the residue heated 15 min. in an oven at 100 to 105° C., cooled, and weighed. The apparent grease content is obtained by multiplying the weight of this residue by 24.

Results obtained in this way are shown in Table II. These results when plotted on rectangular coordinates follow a straight line very closely. (Fig. 1.).

Carrying out the extraction as above and adding the average difference of 0.11% to the apparent grease content in percent, if less than 1% is present, or reading the Soxhlet method % grease off the curve (Fig. 1), will give results well within the error of sampling the wool. A single determination by the quick method requires about 1½ hr. as compared to 3 hr. by the Soxhlet method. Only simple and inexpensive equipment is required.

Southern Show Week

Again gets the breaks of a better business outlook

Introduction to the Exposition Section

■ WE HAVE a hunch W. G. Sirrine, president of the Textile Hall Corp., Greenville, S. C., carries a rabbit's-foot or some other form of good-luck charm. At any rate, he gets the breaks. The last Southern Textile Exposition, in 1937, was staged during a boom period of old-fashioned proportions. This year's show, to be held Apr. 3 to 8, has the healthy background of a sound recovery movement. Certainly, it would have been tough luck if last year, when everything was going to pieces, had been show year.

The fact that the 1939 exposition is the 13th in the series has carried good luck rather than bad. As a result, a comprehensive showing of textile machinery, accessories, supplies, and auxiliary equipment is in prospect.

Advance information received by TEXTILE WORLD from exhibitors reveals that an impressive number of new machines and new developments will be included among the displays. The net significance of these is a re-emphasis of the trend toward ever-increasing mill efficiency. In many cases, this is the result of higher-speed operation.

Program for Week

The big week will start Monday, Apr. 3, at 11.00 A. M., with brief but impressive exercises. On the remaining days of the week the doors will open at 9.30 A. M. and close at 9 P. M., except Saturday, when curfew will be at 4 P. M. (Note the earlier closing hour each evening planned for this year. Hotel "conferences" thus get an hour earlier start.)

Events during the week will include meetings of the Southern Textile Association and of the American Society of Mechanical Engineers. The former will take place Friday, Apr. 7. The A. S. M. E. meeting, under the joint auspices of the Greenville Section and the Textile Division, will be held Wednesday, Apr. 5 and will include a technical session at 9.30 A. M., and a dinner session at 6.30 P. M. H. H. Iler, chairman of the Greenville Section, will preside. During the week there will also be a meeting of textile school deans under the auspices of the Textile Foundation and a meeting of Lowell Textile School alumni.

Background of Show

Twenty-four years ago the first of the Greenville shows was held. The 1915 exposition had as its locale the freight warehouse of the Piedmont and Northern Railroad. By the time for the second show in 1917, however, a new building had been erected to house it.

Despite early forebodings as to the success of a textile exposition "so far" from the textile center of the country, its importance has grown with that of its section until now it ranks as the most outstanding event in the industry. In achieving this result, Mr. Sirrine has had the unfailing help of Miss Bertha Green, secretary of Textile Hall Corp.

In This Issue

To fit in with the exposition, and to serve those thousands of its readers who will attend the show as well as those who will stay at home and read about it, TEXTILE WORLD presents in this issue, commencing on page 119, its Guide to Exhibits at the Southern Textile Exposition, followed by a special group of advertisements of many of the firms which will exhibit there.

In addition, on the pages immediately following this one, is a series of practical mill articles of particular interest to the types of textile men who will make the pilgrimage to Greenville. The content of this section is shown in the panel on this page.

And the next stop will be Greenville itself. TEXTILE WORLD'S headquarters at the exposition will be Booths Nos. 223 and 224. Members of both the editorial and business staffs will be on hand throughout the week, as they have since the first Greenville show. Make our space your headquarters.—*Editor.*

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Reminder

The headquarters of *TEXTILE WORLD*, and of its readers, at the Southern Textile Exposition will be in Booths 223 and 224.

Lighting at West Point

Planned modernization program for five mills stresses improved working conditions

By R. B. Wickham* and J. L. Phillips**

■ CONSTANTLY on the alert for improvements that will result in better working conditions and promote greater efficiency of operation, the management of the West Point Mfg. Co., West Point, Ga. decided to determine definitely if there was any basis for the many advantages claimed by the utility companies, lamp manufacturers, and others for modern lighting. Accordingly, in 1933 a portion of one weave room was selected and an installation made consisting of 36 16-in. R.L.M. reflectors with 200-watt I.F. lamps mounted 11 ft. above the floor and spaced 10 ft. 8 in. over the center line and along the weave alley. This gave an average intensity on the front of the looms of approximately

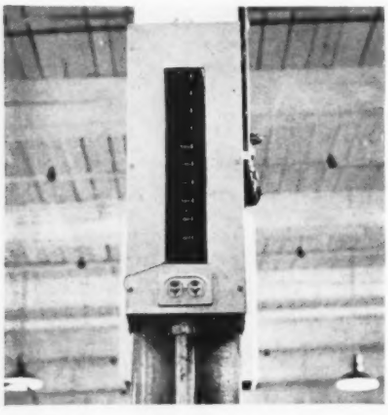


Fig. 1. Typical no-fuse load center—column mounted

16 foot-candles, and on the back of the loom about 13 foot-candles. The looms were on toweling and with a wide variation of color in both the warp and filling. The previous installation consisted of 100-watt bare lamps on drop cords.

The results as reflected by the reaction of the employees working in the relighted area, as well as from those in the balance of the room, were extremely favorable. Consideration was given to the possibility of improved production, but, due to the fact that the style of weave was frequently changed, it was impossible to state definitely that there was any improvement that could be assigned to the lighting installation. However, the management considered the improved working conditions as sufficient justification for the expenditures involved, and then proceeded to formulate a long-range program that would ultimately result in relighting the entire group of five mills of the company located along the banks of the Chattahoochee River, in Alabama.

Lighting Developments

This group of mills of the West Point system has one mill that was built in 1866, and originally was driven by water power. The lighting, if it may be called lighting, was by means of lard-oil lamps spaced at rather infrequent intervals. It is not difficult to imagine such a system with a very limited light output, as well as a constant fire hazard. From the lard-oil-lamp era the lighting art has advanced through the arc lamp, the carbon lamp, and to the present high-efficiency incandescent lamps. All of these have been utilized during the last 71 years. The newer mercury and other sources of illumination are being advanced, and what the future will bring forth can only be a guess.

In the way of reflector equipment, the first installations utilizing electric illumination were with bare lamps, then pointed-cone reflectors, and porcelain enameled of various shapes; now the R.L.M. and prismatic glass reflectors and other relatively glareless types are being used. There are still some sections that are lighted with bare lamps.

There are approximately 7,000 men and women employed, constituting a community of 30,000 people. There are approximately 210,000 spindles in the various mills and 5,000 looms, which include high speed looms, dobby looms, 120-in. duck looms, and jacquard looms. The cloth output consists of ducks, drills, sheetings, twills, crash and towels, which include the well-known West Point and Martex Towels of all colors and shades. The above is responsible for the consumption of 300,000 bales of cotton.

Planned Program

It was initially realized that any lighting layout should be flexible and provisions should be made for an increase in lighting levels with the least effort and expenditure. With this thought in mind, it was decided that all wiring, control equipment, and reflectors should be adequate for the maximum size lamp to be considered for general lighting in cer-

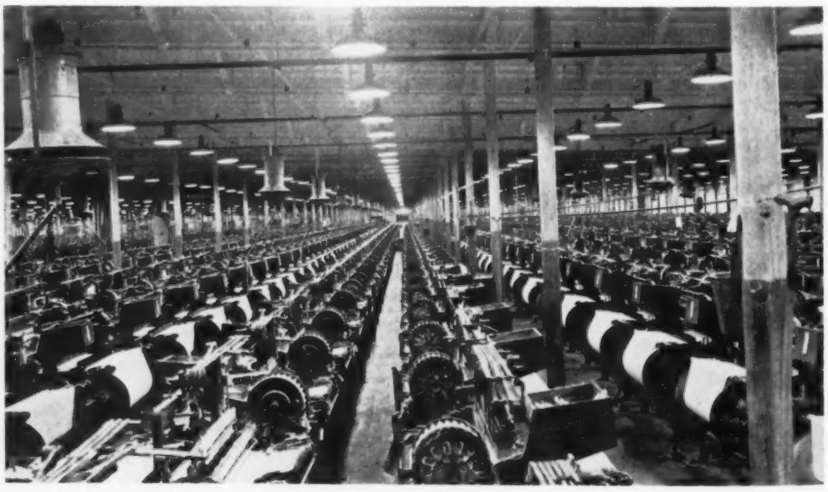


Fig. 2. Weave-room lighting—Lanett Mill

* Superintendent of Power, West Point Mfg. Co.

** Supervisor Industrial Lighting, Alabama Power Co.

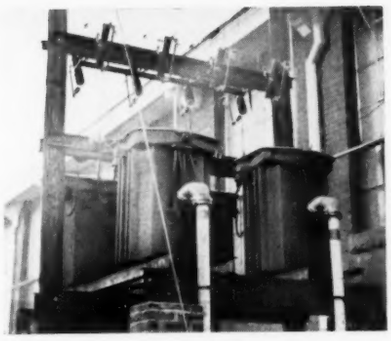


Fig. 3. Typical lighting transformers

tain areas in accordance with the following table:

Department	*Lamp Size Range*
Picker, etc.	200–300 watts
Carding	200–300 watts
Drawing	200–300 watts
Slubbers, etc.	200–300 watts
Spinning	200–300 watts
Spooling	200–300 watts
Winding	200–300 watts
Warping, etc.	200–300–500 watts
Slashing	200–300–500 watts
Weaving	200–300–500 watts
Cloth Room	200–300 watts

These limitations were considered for general lighting only, as it was fully appreciated that localized lighting would be required for many areas and operations, such as drawing-in, tying-in, warpers, slashers, jacquard looms, machine shop, color matching, etc.

In some areas, such as opening, picking, carding, etc., the spacing would be increased so that the resulting average illumination would be consistent with the seeing task to be encountered.

It was decided that all new reflector equipment would have mogul sockets and for a maximum lamp size of 500 watts. Adapters were to be used whenever 200-watt lamps were called for and removed when higher intensity might be required. In this way the intensity could be varied as the difficulty of the seeing task increased, or as an appreciation for better lighting should become more in general demand. The importance of securing and maintaining adequate voltage at the lamp sockets was realized from the start and dictated the size and length of main feeders and branch circuits, as well as transformer location.

The question of branch-circuit control and protection had heretofore been given little consideration. Some old installations were in use where a quarter or half of the entire room, involving several thousand square feet of floor area, was controlled from a single fused safety switch located at a considerable distance from the area controlled. Such systems were not adequate, due to many branch circuit fuses located on the ceiling and also due to the fact the lighting system was difficult to use to the best advantage.

A system of control and protection was developed, utilizing no-fuse circuit breakers mounted in a steel cabinet 10 in. wide and 4 in. deep with the height sufficient to accommodate the required number of branch circuit breakers. This no-fuse load center was mounted on the columns in the center of the lights controlled thereby and usually fed by a feeder located below the floor. The lights per circuit vary from 4 to 7, the branch circuit conductors being No. 12, No. 10, or No. 8 as required and with the breaker rating 20, 25, or

Fig. 4. Solution of lighting problem in a slasher room

35 amperes. The circuits were arranged so that the lights on a single circuit are over the working alleys or by machine groups and also parallel to the windows so that the lighting system can be used most economically.

In order that portable tools, extension cords, scrubbing machines, etc., could be conveniently used, each load center was supplied with a double convenience outlet. A typical load center is shown in Fig. 1.

The system is single phase, 3 wire, 115/230 volts with solid and grounded neutral for feeders and branch circuit feeders. Branch circuits are 3 wire, 115/230 volt or 2 wire, 115 volts. The type of wiring was, of course, conduit. Electrical metallic tubing was used for sizes up to 1½ in. and where the conduits would not be subject to mechanical injury. Galvanized rigid conduit was used for all other sizes. Fixture suspension was by means of a ball fixture hanger ½-in. galvanized conduit stem with No. 14 Type AF fixture wire from the reflector sockets to the branch circuit junction box.

Fuses were eliminated in so far as possible and no-fuse circuit breakers used in place of fused safety switches. Feeders were usually run full size for their entire length thereby eliminating excessive voltage drop at the end.

Weave Room

The first installation to be undertaken under this lighting modernization program consisted of a weave shed containing 2,400 looms. This room is 256 ft. wide and 576 ft. long and of saw-tooth construction. There are 1,026 separable-hood R.L.M. reflectors, 18 in. in diameter for 200, 300, or 500 watts. The initial lamp size was 200 watts throughout, but some over certain areas have been changed to 300 and 500 watts. The spacing along the weave alley is approximately 10 ft. 8 in. and across the room approximately 12 ft. 10 in. This installation is shown in Fig. 2.

A feature of interest is that all lighting transformers are fed directly from an 11-kv. primary line that runs directly along the length of the building. A typical bank of transformers is shown in Fig. 3.

Primary service at this voltage, when convenient, is advantageous in that regulation is improved by the elimination of an extra transformation. The over-all losses are also reduced. Secondary runs are underground to the secondary feeders which run across the weave room directly under the line of load centers located on the columns.

There are approximately 2.34 looms per outlet, or a maximum lighting capacity of 214 watts per loom. Use of 500 watts per outlet results in an average intensity of approximately 35 foot-candles on the front of the looms and 30 foot-candles on the back of the loom or warp alley.

In a weave room with dobby looms making toweling—due to the nature of the seeing task, which involves a complicated weave and all colors and shades—it was necessary to take advantage of the flexibility of the original design and go to both 300-watt and 500-watt lamps.

The solution of the lighting problem as existing in a typical slasher room is shown in Fig. 4. This solution is somewhat different from the usual recommendation, in that the units over the beam end are placed between the slashers and equipped with 500-watt lamps. This was done so that the operator, in leaning over the beam, would not be in his own shadow. The results have been most satisfactory. Due to the fact that two separate beams were being run at the same time, an installation of local lighting was provided. This unit consisted of a gutter trough with two 60-watt lamps suspended from the slasher frame.

Lighting of jacquard looms is a very difficult problem at the best. The

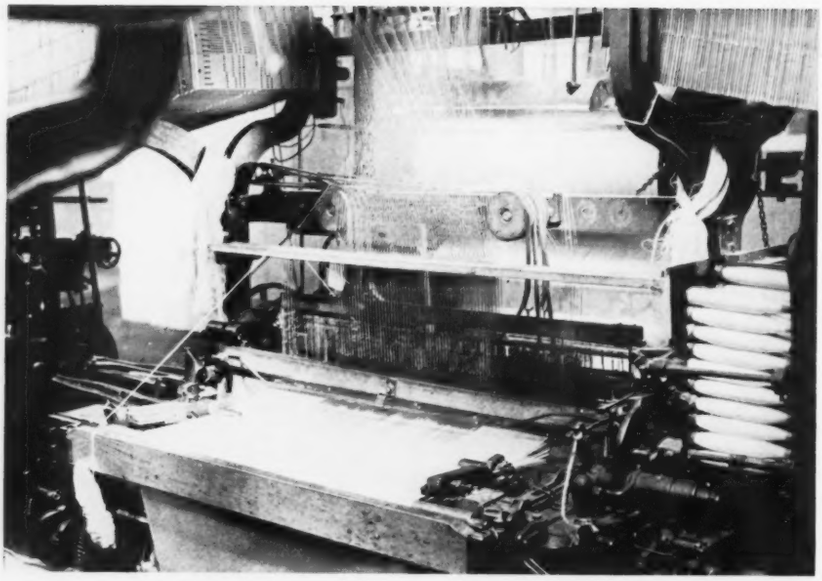


Fig. 5. Lighting of jacquard looms presents a difficult problem

solution of this problem is shown in Fig. 5. A unit of "gutter trough" design and of local construction was suspended on springs from the loom beam and above the harness. Angle reflectors were installed under the cat walk and conventional general illumination was provided above the cat walk.

Lighting of drawing-in frames is by means of local lighting supplemented by about 14 foot-candles of general lighting.

Lighting of a typical spinning room is shown in Fig. 6. A staggered spacing is used and provision made for a maximum lamp size of 300 watts.

The above brief description covers only a few of the installations completed. The magnitude of the various installations may be gained from the fact that over 3,500 500-watt reflectors have been purchased since the start of the program. The present plan calls for the installation of from 50 to 100 units per month. In this way cost is spread evenly and does not require excessively large appropriations at any one time.

Results

The benefits and the results secured from the lighting modernization program may be summarized as follows:

The overseer of the large weave room states: "I would not be without the lighting installation for anything. Now we can turn out better cloth with fewer rejects and seconds."

The cloth room lighting was improved and the cloth room overseer states: "Now we are able to turn out a much more satisfactory and uniform product, which is highly satisfactory to us and our customers."

Another overseer states: "The employees take more pride in their personal appearance, as well as better care of the machinery under their care."

The mill management considers the entire lighting program justified on the basis of improved working conditions and eyesight conservation.

Since the program was started several superintendents who were not exactly enthusiastic are now most anxious to have their mills relighted and are insistent that their mill be next on the program.

Recreation Facilities

In addition to the utilization of modern lighting practice in the mills, the management is keenly interested in providing recreation facilities for its employees for use, not only in the daytime, but at night as well. This policy has resulted in the lighting of four softball fields, three tennis courts, swimming pools, playgrounds, etc. The main ball park was lighted for football with an installation requiring 84 kw. At the present time this football field is being reworked and changed to baseball for which it has a total of 123 kw.

Modern school, libraries, auditoriums, and gymnasiums are also provided, all of which are lighted in accordance with good, modern practice.

Of interest is the illumination of a memorial to one of the founders of this institution. This installation embodies underwater floodlighting for the pool, mobile underwater colored floodlights for the fountain, and soft floodlighting for the background.

Effect on Community

Due to the fact that some of the employees were so impressed with lighting conditions in the mills, numerous requests have been made as to what could be done to improve seeing conditions in their homes. Some have insisted on completely indirect light and have it. This program is also reflected throughout the entire community, in that churches, stores, banks, offices, etc., have been relighted in accordance with modern practice.

The results show what can be accomplished in the way of modernization with light—light for production, light for seeing, light for beauty—as was and is being carried forward by West Point Mfg. Co. organization, with particular stress being placed on the value of improvements for the betterment of employees' working conditions.

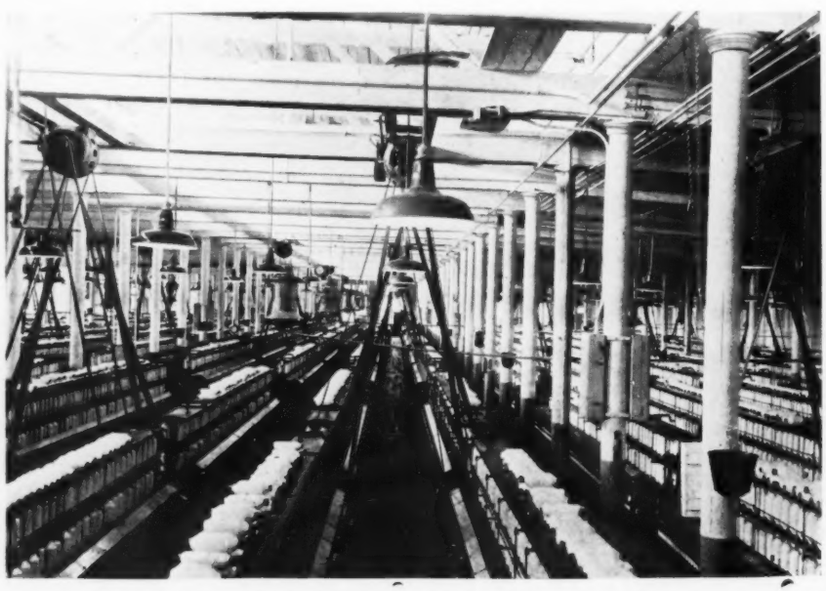


Fig. 6. Staggered spacing is a feature of the lighting arrangement in a typical spinning room

Carder, Know Your Cotton

Maximum length of fibers at point of processing is more important than classified length

By E. H. Helliwell

■ THREE important reasons why the carder should check the staple length, grade, and character of cotton delivered to the opening room are: to enable him to make sure that his company receives what it has paid for; to assist him in maintaining yarn strength and cleanliness and in keeping waste percentages within reasonable limits; to aid him in determining correct machine settings and organizations. In cases in which the mill employs a cotton classer, it will prove profitable to have close cooperation between the classer and the carder.

Remedies for Irregularities

There are many irregularities in cotton deliveries which only the man in the opening room can detect and remedy. Some, with which he is confronted constantly, are short-staple, low-grade, false-packed, plated, mildewed, damaged and wet bales, and bales containing foreign matter and excessive tare. Classification of staple length probably has been the source of more disputes and disagreements in cotton mills than any other one thing. Good judgment and precise measurements, seemingly, are gained only by long experience and many observations.

Moisture regain in the sample of cotton taken for classing has an important effect on the classification length. Government official cotton standards are classified for length at 65% relative humidity at 70° F. This gives a regain of about 8%. True length of staple cannot be obtained if the cotton is classed under humidity conditions widely different from these. The staple at almost bone-dry condition is 1/32 to 1/16 in. shorter than it is at normal conditions. See Fig. 1.

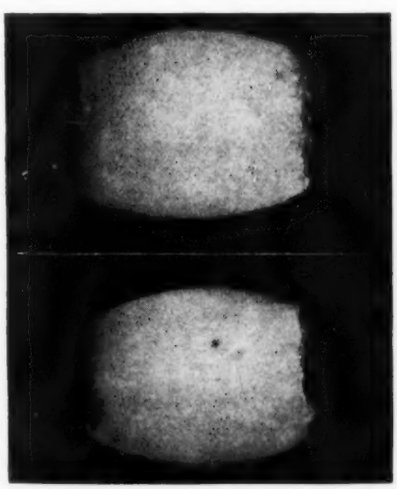


Fig. 1. Above, cotton stapled under normal humidity conditions; below, the same cotton stapled under nearly bone-dry conditions. Note apparent loss of length due to loss of contained moisture

Cotton should be exposed, when possible, to standard humidity for at least 4 hr. before stapling. Actual tests show that moisture regain can vary between 6.5% and 8.5% without greatly affecting the staple length. However, baled cotton sometimes will regain as much as 13% moisture. Such an excessive amount of moisture tends to increase the apparent length of staple.

Apparant Loss of Length

Cotton exposed to very dry conditions for long periods seems to acquire a permanent shortening of staple; i.e., it appears to regain only part of its original length when exposed to normal conditions. For this reason, the government places a time limit on the validity of its official samples for length. Hence, it is a good plan for the mill to condition official samples to standard humidity and then seal them in air-tight containers.

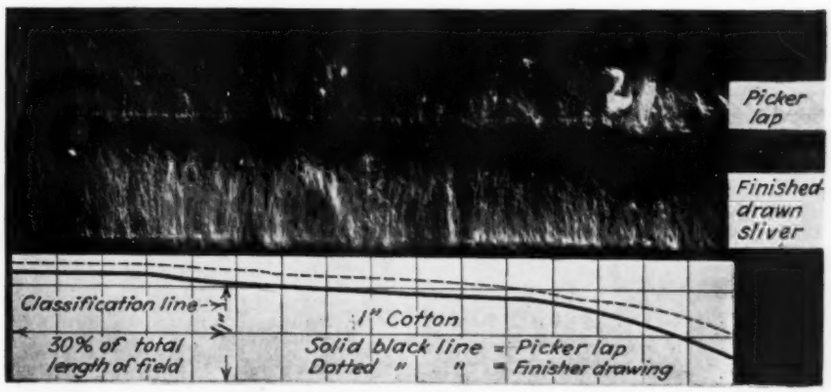


Fig. 2. Fiber arrays of 1-in. cotton from picker lap and from finished-drawn sliver. Note increased length due to the straightening action of the drawing rolls. The graph shows comparison of fiber lines of cotton from picker lap and that from finished drawn sliver. Note classification line located at a point 30% of the total length of the array from the maximum-length end of the field

From examination of a fiber array, it can be seen that lengths of fibers in a specimen of 1-in. cotton may vary from a maximum of 1⅛ in. to a minimum of less than ½ in. The laying down of fiber arrays consistently places the classification length of normal cotton at a point which is 30% of the total length of the field from the maximum-length end of the field. See curve in Fig. 2. This means that 30% of the fibers in the specimen are slightly longer than the classification length. It is these longer fibers that cause much of the confusion in stapling.

Yarn Strength and Fiber Length

All other factors being equal, yarn strength is closely proportional to fiber length, within a limited range. From determinations made from many fiber arrays of normal 1-in. cotton, the average length of all fibers in such arrays has been found to be close to 0.86 in. The average length has been found to be shorter than the classification length in this same proportion for cotton of other staple lengths. Abnormal cotton contains a larger proportion of shorter fibers; therefore, the average staple length is less.

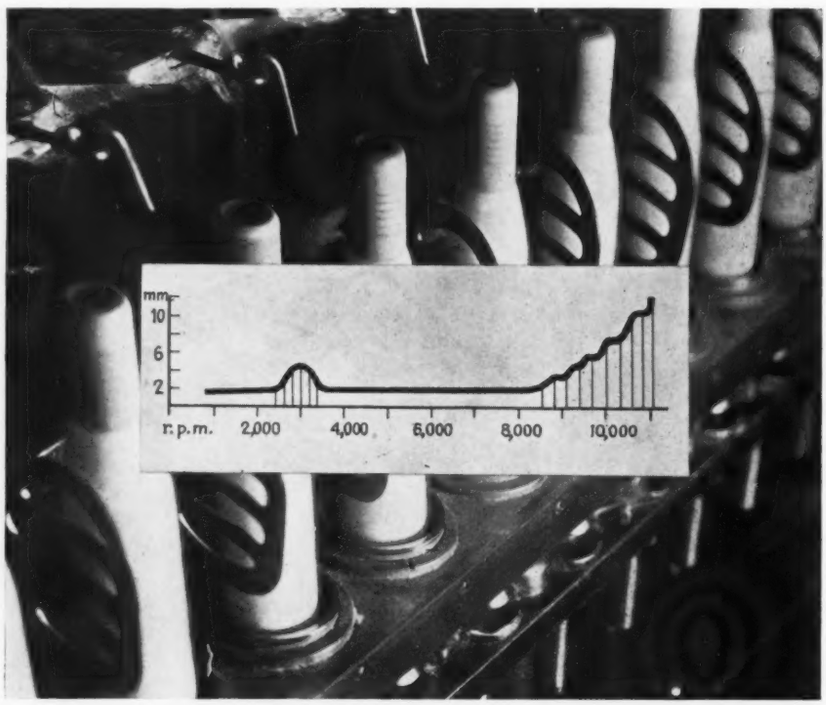
It has been found from extensive tests made on 30s warp yarn, with skein strength plotted against average fiber length, that skein strength is

(Continued on page 77)

Vibrating Spindles

Recent developments promise solution of serious problem in high-speed, large-package spinning

High-speed, large-package spinning of cotton yarns has brought with it a problem which was almost unknown a few years ago. This is the problem of vibrating spindles. Although this problem has been recognized for some time, little has appeared on it in this country. The following article discusses the cause of vibrating spindles, the effect of vibration, and the steps which are now being taken to solve the problem. Sources of factual data on which the article is based include various foreign publications; the book "Modern Bearing Designs for Spindles"; Saco-Lowell Bulletin, February, 1939; and unpublished information furnished by S.K.F. Industries, Inc.



The graph shown above indicates amplitude of vibration of one type of spindle with great lack of balance artificially produced for experimental purposes

■ WITH THE smaller packages and lower speeds formerly employed in cotton spinning, both spindles and bobbins gave satisfactory service over long periods of time. Upon the adoption of large-package, high-speed spinning, mill men were confronted with excessive wear in the bolsters or at the tips of the spindles. This excessive wear has been noted with plain-bearing, roller-bearing, and ball-bearing spindles; and the trouble in most cases has been traced to use of bobbins which were out of balance or which were too loose on the spindles.

Stress Increases with Weight

The stress to which a spindle is subjected by an unbalanced bobbin of yarn increases in direct proportion to the weight and degree of unbalance of the rotating mass and with the square of the speed. For example, if an unbalanced bobbin filled with yarn weighs 5 oz. and the center of gravity or centrifugal axis is 1/32 in. from the axis of rotation, it is found that the centrifugal force alone is 28 lb. at 10,000 r.p.m., and 34 lb. at 11,000 r.p.m.

Under adverse operating conditions involving loosely fitting bobbins due to wear or large yarn accumulations, warped bobbins, worn spindle blades, worn bolsters, etc., the eccentricity of the center of gravity is likely to become even greater. This increased eccentricity may result in serious damage to the bobbin, spindle blade, and spindle bearing.

It has been discovered also that damage may be caused by the slip of the bobbin on the spindle, which varies from zero with new properfitting bobbins to a maximum of one revolution in 6 sec. with bobbins that are worn badly both at the tip and the acorn. This slip affects the wind of the yarn, the diameter of the full bobbin, and the density. Likewise it is the cause of rapid wear at the upper bearing of wooden bobbins, which, in turn, produces wear at the tip of the spindle.

A great deal of thought has been given to the problem of vibrating spindles, and recently some important developments have occurred.

It is possible, theoretically at least, to design a spindle which would be free from vibration at high speeds when subjected to the stresses of unbalanced bobbins, regardless of the size of package. However, the cost of such spindles probably would be prohibitive. For that reason, it has appeared more practical to attack the problem from a different angle—that of the yarn package. Accordingly, efforts have been made to obtain better balanced bobbins by more careful selection of wood, improved methods of manufacture, more rigid examination, and application of brass bushings at the bearings of the bobbins.

Use of Rubber Bushing

These efforts have been helpful, but have not entirely eliminated the trouble. Impregnation of the bobbins with a waterproof lacquer or other material to prevent warping of the wood when it is exposed to damp conditions is also beneficial. The most recent development along these lines is the application of a rubber bushing to the upper bearing of the regular hardwood bobbin. This cushioned up-

per bearing was first announced last month and is described in more detail on page 97 of this issue. The manufacturer of the bearing assembly is now making arrangements with leading bobbin manufacturers so that it can be applied to their products.

European Practice

In European cotton mills it has become almost standard practice on all new installations to employ hard, impregnated-paper or fiber tubes in place of wooden bobbins. Although the original reason for use of paper tubes was not to prevent spindle wear, they have been found to reduce it to a negligible amount. The spindle for paper tubes has a top section consisting of a hollow, conical wooden plug, or an aluminum plug, mounted on the spindle blade, with a metal ferrule at the top upon which the paper tube is mounted. If a wooden plug is used, it is made of well-seasoned wood which is impregnated to resist warping.

According to European experience, the paper tubes should have contact with the spindle on about one-third of the upper part and should have a diametrical play at the lower and of about 0.01 in. This clearance gives the yarn package the degree of mobility needed for self-centering while rotating at high speeds and prevents the tube from binding on the spindle or bending the blade. A hard-paper tube for 8-in. traverse and 2-in. ring weighs ¾ oz., in comparison with 2¼ to 2½ oz. for a wooden bobbin of the same size; the initial cost is about 25% of that of a high-quality wooden bobbin. The lower weight of the paper tubes and, more particularly, the method of top mounting, whereby the revolving mass is supported at a point above the center of gravity, decrease the stress to which the spindle is subjected and reduce wear at the top bearing. However, even an empty tube, if too oval in section, can cause excessive oscillation of the spindle. It is important, therefore, that tubes be carefully selected for balance, treated carefully, and discarded when they become worn or damaged.

Sleeve Type Spindles

Sleeve type spindles have been manufactured in this country for many years for export to Europe and South America. During the last year one southern mill has installed this type of spindle for producing 30s yarn. The spindle carries a tube 8½ in. long with a maximum diameter of 1 in. and is used on a frame equipped with a 1¾-in. ring. Weight of the full bobbin is 3.9 oz.; net weight of yarn at doffing is 3 oz.; spindle speed is 10,500 r.p.m. It is reported that other mills are planning to make trial installations in the near future.

Relation to Cost

If the impregnated-paper or hard-fiber tube proves to be as advantageous under conditions encountered in this country as it has in Europe, it is easily conceivable that it will be widely adopted for use on new installations of high-speed, large-package spinning equipment. Presumably, however, the higher cost of the sleeve spindle, as compared with the regular spindles, more or less limits its adoption to new installations. For use on spinning machinery already installed, development of improved bobbins, such as the cushioned bearing bobbin mentioned above, appears to be the more logical approach to the problem of the vibrating spindle. It is too soon to know what the final answer will be, but the concerted attack now being made on the problem by textile men, machinery builders, and bobbin manufacturers promises an early solution.

Carder, Know Your Cotton

(*Continued from page 75*)

directly proportional to average fiber length.

Examinations of skein breaks will show that fiber slippage, and not fiber breakage, is the principal cause of yarn fracture. Unless fibers are actually damaged, such as gin cut, mildewed, etc., fiber strength has slight effect on yarn strength. A variation in the fineness or diameter of the fibers, which results in a greater or lesser number of fibers per cross-section of yarn, will affect the strength of the yarn. This generally can be ignored as a factor when using the same types of American varieties of cotton. Any loss in yarn strength usually is traceable to decreased fiber length.

At Point of Processing

As the maximum length of the fibers at the point of processing controls the most important machine settings, this is more important to the carder than is the classified length. Good, strong, even yarn cannot be made with improper roll settings, and, in turn, proper roll settings cannot be made without accurate knowledge of the lengths of the fibers being drafted. Fiber arrays show the maximum lengths and how they vary from the classified lengths. Control of fibers while drafting demands roll settings which are nearly equal to the maximum length of the fibers. However, the danger of fiber breakage and bad-running work forbids settings which are close enough to nip the same fibers between two weighted rolls moving at different speeds.

According to the old technique of setting rolls, the specified settings were a certain amount greater than the classified staple length of the cotton to be drafted. Obviously, from observation of fiber arrays, this is not the best practice. The real controlling factor, as stated before, is the maximum fiber length at the point of processing. The fiber arrays in Fig. 2 show the varying lengths of fibers in the picker lap and the increased lengths of fibers (of the same cotton) in the finished-drawn sliver. This increase in length is caused by the straightening effect of the drawing rolls and the removal of fiber crimp. Further drafting in subsequent processes causes a slight additional increase in fiber length.

There are too many factors affecting roll settings for any hard-and-fast rule to be made that will cover all cases and conditions. Length and character of staple, weight of roving per unit length, diameter and type of drafting rolls, speed of rolls, amount of twist in back roving, amount of front and break draft, weight on top rolls, pitch and condition of fluted rolls, and humidity are all factors which affect, to a certain extent, roll settings required for the most efficient drafting.

A Perfect Blend

Improvements in design and arrangement of opening and picking machinery, with blending feeders and blending reserves, make it possible to mix cotton of various staple lengths, grades, and characteristics so that the resultant picker laps constitute a perfect blend of all the characteristics of the individual bales. Fiber arrays made from picker laps of blended cotton prove that the average staple length of a blend is equal to the mean of the average lengths of all the cottons used in the mix. With the effective blending that can be obtained with modern machinery, there should be no difficulty in maintaining the correct roll settings. However, precaution should be taken to preserve the same proportion of bales with different staple lengths, in succeeding mixes of the blend.

Weave-Room Chart

Affords simple means of obtaining accurate stock report of yarn on loom beams

By F. S. Foster

■ THE PROBLEM of taking stock in cotton mills is almost always somewhat of a nightmare to operating executives. By some, an accurate stock report is thought to be not worth the expense and labor that ordinarily are involved. The writer is of the opinion that an accurate report can be obtained without a great deal of extra trouble. This is particularly true of the weaving department. In this department the stock is compact; and a great bulk of the stock-in-process is to be found here, so that an accurate report is of first importance. An accurate method of taking stock of yarn on loom beams is the chief contributing factor in obtaining an accurate weave-room report.

Several methods of taking stock of yarn on loom beams, in more or less common use in various mills, are: to take each beam off the loom and weigh it; to keep a record of the cuts taken from each loom beam and deduct each from the amount of yarn originally put on the beam; to mark a stick as each cut is put on the beam at the slasher and use this stick to determine the number of cuts on the loom beam; to estimate the number of cuts on the beam, by sight—usually the overseer does this.

After having tried several methods, the writer has come to the conclusion that the most practical method is to calculate the volume of yarn on the loom beam and divide this by the density of the warp. It has been found that the average density of slashed cotton warps is 60 cu.in. per lb. for yarn Nos. 6s to 21s, in from one to four plies. However, this constant of 60 does not hold true for soft-twist plied yarn, nor for soft warps.

The volume of yarn on a loom beam is equal to the total volume of warp minus the volume of the beam barrel. This can be expressed mathematically as follows: $V = \pi (R^2 - r^2) \times L$; in which V = volume; R = radius of warp; r = radius of bar-

LENGTH OF BEAM	DEPTH OF YARN ON BEAM																			
	¼ in.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	1¾ in.	2 in.	2¼ in.	2½ in.	2¾ in.	3 in.	3¼ in.	3½ in.	3¾ in.	4 in.	4¼ in.	4½ in.	4¾ in.	5 in.
20 in.	1.64	3.40	5.30	7.33	9.49	11.8	14.2	16.7	19.4	22.2	25.2	28.3	31.5	34.8	38.3	41.9	45.6	49.5	53.4	57.6
22 in.	1.80	3.74	5.83	8.06	10.4	13.0	15.6	18.4	21.4	24.5	27.7	31.1	34.6	38.3	42.1	46.1	50.2	54.4	58.8	63.3
24 in.	1.96	4.08	6.36	8.79	11.4	14.1	17.0	20.1	23.3	26.7	30.2	33.9	37.8	41.8	45.9	50.3	54.7	59.4	64.1	69.1
26 in.	2.13	4.42	6.89	9.53	12.3	15.3	18.5	21.8	25.3	28.9	32.7	36.7	40.9	45.2	49.7	54.4	59.3	64.3	69.5	74.8
28 in.	2.29	4.76	7.42	10.3	13.3	16.5	19.9	23.4	27.2	31.1	35.3	39.6	44.1	48.7	53.6	58.6	63.8	69.2	74.8	80.6
30 in.	2.45	5.10	7.95	11.0	14.2	17.7	21.3	25.1	29.1	33.4	37.8	42.4	47.2	52.2	57.4	62.8	68.4	74.2	80.2	86.4
32 in.	2.62	5.44	8.48	11.7	15.2	18.8	22.7	26.8	31.1	35.6	40.3	45.2	50.4	55.7	61.2	67.0	73.0	79.1	85.5	92.1
34 in.	2.78	5.78	9.01	12.5	16.1	20.0	24.1	28.5	33.0	37.8	42.8	48.0	53.5	59.2	65.1	71.2	77.5	84.1	90.9	97.9
36 in.	2.94	6.12	9.54	13.2	17.1	21.2	25.6	30.2	35.0	40.0	45.3	50.9	56.6	62.7	68.9	75.4	82.1	89.0	96.2	104.0
38 in.	3.11	6.46	10.1	13.9	18.0	22.4	27.0	31.8	36.9	42.3	47.9	53.7	59.8	66.1	72.7	79.6	86.7	94.0	102.0	109.0
40 in.	3.27	6.80	10.6	14.7	19.0	23.6	28.4	33.5	38.9	44.5	50.4	56.5	62.9	69.6	76.5	83.7	91.2	98.9	107.0	115.0
42 in.	3.44	7.15	11.1	15.4	19.9	24.7	29.8	35.2	40.8	46.7	52.9	59.4	66.1	73.1	80.4	87.9	95.8	104.0	112.0	121.0
44 in.	3.60	7.49	11.7	16.1	20.9	25.9	31.2	36.9	42.8	48.9	55.4	62.2	69.2	76.6	84.2	92.1	100.0	109.0	118.0	127.0
45 in.	3.76	7.83	12.2	16.9	21.8	27.1	32.7	38.5	44.7	51.2	57.9	65.0	72.4	80.0	88.0	96.3	105.0	114.0	123.0	132.0
48 in.	3.93	8.17	12.7	17.6	22.8	28.3	34.1	40.2	46.6	53.4	60.5	67.8	75.5	83.6	91.9	101.0	109.0	119.0	128.0	138.0
50 in.	4.09	8.51	13.2	18.3	23.7	29.4	35.5	41.9	48.6	55.6	63.0	70.6	78.7	87.0	96.7	105.0	114.0	124.0	134.0	144.0
52 in.	4.25	8.85	13.8	19.1	24.7	30.6	36.9	43.6	50.5	57.8	65.5	73.5	81.8	90.5	99.5	109.0	119.0	129.0	139.0	150.0
54 in.	4.42	9.19	14.3	19.8	25.6	31.8	38.3	45.2	52.6	60.0	68.0	76.3	85.0	94.0	103.0	113.0	123.0	134.0	144.0	155.0
56 in.	4.58	9.53	14.8	20.5	26.6	33.0	40.0	46.9	54.4	62.3	70.5	79.1	88.1	97.5	107.0	117.0	128.0	139.0	150.0	161.0
58 in.	4.74	9.87	15.4	21.3	27.5	34.2	41.2	48.6	56.4	64.5	73.1	82.0	91.3	101.0	111.0	121.0	132.0	143.0	155.0	167.0
60 in.	4.91	10.2	15.9	22.0	28.5	35.3	42.6	50.3	58.3	66.7	75.6	84.8	94.4	104.0	115.0	126.0	137.0	148.0	160.0	173.0
62 in.	5.07	10.5	16.4	22.7	29.4	36.5	44.0	52.9	60.2	69.0	78.1	87.6	97.6	108.0	119.0	130.0	141.0	153.0	166.0	178.0
64 in.	5.23	10.9	17.0	23.5	30.4	37.7	45.4	53.6	62.2	71.2	80.6	90.5	101.0	111.0	122.0	134.0	146.0	158.0	171.0	184.0
66 in.	5.40	11.2	17.5	24.2	31.3	38.9	46.9	55.3	64.1	73.4	83.1	93.3	104.0	115.0	126.0	138.0	150.0	163.0	176.0	190.0
68 in.	5.56	11.6	18.0	24.9	32.2	40.0	48.3	57.0	66.0	75.6	85.7	96.1	107.0	118.0	130.0	142.0	155.0	168.0	182.0	196.0
70 in.	5.73	11.9	18.6	25.7	33.2	41.2	49.7	58.6	68.0	77.9	88.1	99.0	110.0	122.0	134.0	147.0	160.0	174.0	187.0	202.0
72 in.	5.89	12.2	19.1	26.4	34.2	42.4	51.1	60.3	70.0	80.0	90.2	102.0	113.0	125.0	138.0	151.0	164.0	178.0	192.0	207.0
74 in.	6.05	12.6	19.6	27.1	35.1	43.6	52.5	62.0	71.9	82.3	93.2	105.0	116.0	129.0	142.0	155.0	169.0	183.0	198.0	213.0
76 in.	6.22	12.9	20.1	27.8	36.1	44.8	54.0	63.7	73.8	84.5	95.7	107.0	120.0	132.0	145.0	159.0	173.0	188.0	203.0	219.0
78 in.	6.38	13.3	20.7	28.6	37.0	45.9	55.4	65.3	75.8	86.8	98.2	110.0	123.0	136.0	149.0	163.0	178.0	193.0	208.0	225.0
80 in.	6.54	13.6	21.2	29.3	38.0	47.1	56.8	67.0	77.7	89.0	101.0	113.0	126.0	139.0	153.0	168.0	182.0	198.0	214.0	230.0
82 in.	6.71	14.0	21.7	30.0	38.9	48.3	58.2	68.7	79.7	91.2	103.0	116.0	129.0	143.0	157.0	172.0	187.0	203.0	219.0	236.0
84 in.	6.87	14.3	22.3	30.8	39.8	49.5	59.6	70.3	81.6	93.4	106.0	119.0	132.0	146.0	161.0	176.0	192.0	208.0	225.0	242.0
86 in.	7.03	14.6	22.8	31.5	40.8	50.6	61.1	72.0	83.6	96.7	108.0	122.0	135.0	150.0	165.0	180.0	196.0	213.0	230.0	248.0
88 in.	7.20	15.0	23.3	32.2	41.7	51.8	62.5	73.7	85.5	97.9	111.0	124.0	138.0	153.0	168.0	184.0	201.0	218.0	235.0	253.0
90 in.	7.36	15.3	23.9	33.0	42.7	53.0	63.9	75.4	87.5	100.0	113.0	127.0	142.0	157.0	172.0	188.0	205.0	223.0	241.0	259.0
92 in.	7.53	15.7	24.4	33.7	43.6	54.2	65.3	77.0	89.4	102.0	116.0	130.0	145.0	160.0	176.0	193.0	210.0	228.0	246.0	265.0
94 in.	7.69	16.0	24.9	34.4	44.6	55.4	66.7	78.7	91.3	105.0	118.0	133.0	148.0	164.0	180.0	197.0	214.0	232.0	251.0	271.0
96 in.	7.85	16.3	25.4	35.2	45.5	56.5	68.1	80.4	93.3	107.0	121.0	136.0	151.0	167.0	184.0	201.0	219.0	237.0	257.0	276.0
98 in.	8.02	16.7	26.0	35.9	46.5	57.7	69.6	82.1	95.2	109.0	123.0	138.0	154.0	171.0	188.0	205.0	223.0	242.0	262.0	282.0
100 in.	8.18	17.0	26.5	36.6	47.4	58.9	71.0	83.8	97.2	111.0	126.0	141.0	157.0	174.0	191.0	209.0	228.0	247.0	267.0	288.0
102 in.	8.34	17.4	27.0	37.4	48.4	60.0	72.4	85.4	99.1	113.0	128.0	144.0	161.0	178.0	195.0	214.0	233.0	252.0	273.0	294.0
104 in.	8.51	17.7	27.6	38.1	49.3	61.2	73.8	87.1	101.0	116.0	131.0	147.0	164.0	181.0	199.0	218.0	237.0	257.0	278.0	299.0
106 in.	8.67	18.0	28.1	38.8	50.3	62.4	75.3	88.8	103.0	118.0	134.0	150.0	167.0	184.0	203.0	222.0	242.0	262.0	283.0	305.0
108 in.	8.83	18.4	28.6	39.6	51.2	63.6	76.7	90.5	105.0	120.0	136.0	153.0	170.0	188.0	207.0	226.0	246.0	267.0	289.0	311.0
110 in.	9.00	18.7	29.1	40.3	52.2	64.8	78.1	92.1	107.0	122.0	139.0	155.0	173.0	191.0	211.0	230.0	251.0	274.0	294.0	317.0

rel; L = length of beam; and π = 3.14.

The volume, also, can be expressed in the following manner:

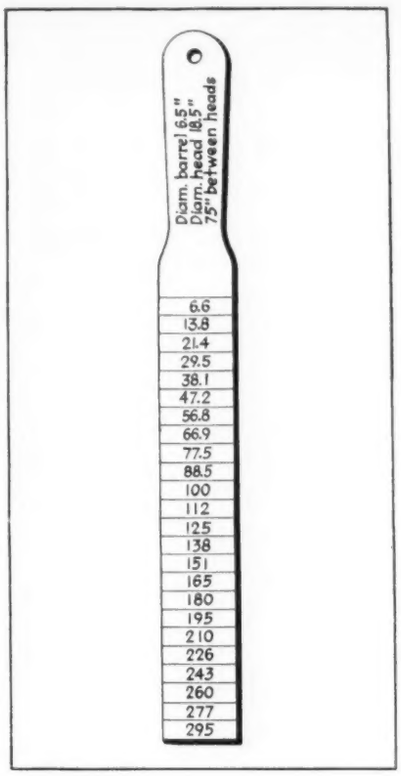
$V = (\pi \div 4) \times (R + r) \times (R - r) \times L$

Assume that a mill has a group of looms which are using 750-yd. warps with 2,760 ends of 10s single yarn and 11% size, placed on loom beams which have a length of 75 in. between heads and a barrel diameter of 6.5 in. Suppose for example, that one warp is 18.5 in. in diameter. The volume of yarn can be determined by applying either of the above formulas; however, in this case the one making use of the difference of the squares will be applied.

Volume = $3.14 \times (9.25^2 - 3.25^2) \times 75 = 1{,}760$ cu.in.

Weight of warp = 1,760 ÷ 60, or 293 lb.

Mills using only a few different sizes of loom beams can use scales, such as one shown in the illustration, for determining the weight of yarn on beams. However, since it is necessary to have a different scale for each size loom beam, those mills which use a number of different sizes of loom beams will find it practical to use a chart similar to the one shown.



To make a scale, first draw marks at ¼-in. intervals on a strip of cardboard or wood. These are to be drawn over the whole distance from the beam barrel to the edge of the flange. Next calculate the weight of yarn on the beam at each ¼ in. Then insert the amounts in the spaces on the scale, beginning with the smallest amount at the top. See diagram. When this scale is placed on the inside of the loom beam, with the bottom end against the yarn, the number of pounds can be read directly from the scale, at the mark which coincides with the outer edge of the flange.

For use in connection with the chart, all that is necessary is an inverted scale divided into ¼-in. spaces, for each different size of beam head.

***Left.** Scale for determining pounds of yarn on a particular size loom beam*

***Below.** Chart for pounds of yarn on various lengths of beams with 6-in. barrels*

DEPTH OF YARN ON BEAM

5¼ in.	5½ in.	5¾ in.	6 in.	6¼ in.	6½ in.	6¾ in.	7 in.	7¼ in.	7½ in.	7¾ in.	8 in.	8¼ in.	8½ in.	8¾ in.	9 in.	9¼ in.	9½ in.	9¾ in.	10 in.	LENGTH OF BEAM
1.8	66.2	70.7	75.4	80.1	85.0	90.1	95.3	101.0	106.0	112.0	117.0	123.0	129.0	135.0	141.0	148.0	154.0	161.0	167.0	20 in.
68.0	72.8	77.8	82.9	88.2	93.6	99.1	105.0	111.0	117.0	123.0	129.0	135.0	142.0	149.0	156.0	162.0	170.0	177.0	184.0	22 in.
74.2	79.5	84.9	90.5	96.2	102.0	108.0	114.0	121.0	127.0	134.0	141.0	148.0	155.0	162.0	170.0	177.0	185.0	193.0	201.0	24 in.
80.4	86.1	91.9	98.0	104.0	111.0	117.0	124.0	131.0	138.0	145.0	152.0	160.0	168.0	176.0	184.0	192.0	200.0	209.0	218.0	26 in.
86.6	92.7	99.0	105.0	112.0	119.0	126.0	133.0	141.0	148.0	156.0	164.0	172.0	181.0	189.0	198.0	207.0	216.0	225.0	234.0	28 in.
92.7	99.3	106.0	113.0	120.0	128.0	135.0	143.0	151.0	159.0	167.0	176.0	185.0	194.0	203.0	212.0	221.0	231.0	241.0	251.0	30 in.
98.9	106.0	113.0	121.0	128.0	136.0	144.0	152.0	161.0	170.0	178.0	188.0	197.0	206.0	216.0	226.0	236.0	247.0	257.0	268.0	32 in.
105.0	113.0	120.0	128.0	136.0	145.0	153.0	162.0	171.0	180.0	190.0	199.0	209.0	219.0	230.0	240.0	251.0	262.0	273.0	285.0	34 in.
111.0	119.0	127.0	136.0	144.0	153.0	162.0	171.0	181.0	191.0	201.0	211.0	222.0	232.0	243.0	254.0	266.0	277.0	289.0	302.0	36 in.
117.0	126.0	134.0	143.0	152.0	162.0	171.0	181.0	191.0	201.0	212.0	223.0	234.0	245.0	257.0	269.0	281.0	293.0	305.0	318.0	38 in.
124.0	132.0	141.0	151.0	160.0	170.0	180.0	191.0	201.0	212.0	223.0	234.0	246.0	258.0	270.0	283.0	295.0	308.0	321.0	335.0	40 in.
130.0	139.0	149.0	158.0	168.0	179.0	189.0	200.0	211.0	223.0	234.0	246.0	258.0	271.0	284.0	297.0	310.0	324.0	338.0	352.0	42 in.
136.0	146.0	156.0	166.0	176.0	187.0	198.0	210.0	221.0	233.0	245.0	258.0	271.0	284.0	297.0	311.0	325.0	339.0	354.0	369.0	44 in.
142.0	152.0	163.0	173.0	184.0	196.0	207.0	219.0	231.0	244.0	257.0	270.0	283.0	297.0	311.0	325.0	340.0	355.0	370.0	385.0	46 in.
148.0	159.0	170.0	181.0	192.0	204.0	216.0	229.0	241.0	254.0	268.0	281.0	295.0	310.0	324.0	339.0	354.0	370.0	386.0	402.0	48 in.
155.0	166.0	177.0	188.0	200.0	213.0	225.0	238.0	251.0	265.0	279.0	293.0	308.0	323.0	338.0	353.0	369.0	385.0	402.0	419.0	50 in.
161.0	172.0	184.0	196.0	208.0	221.0	234.0	248.0	261.0	276.0	290.0	305.0	320.0	335.0	351.0	367.0	384.0	401.0	418.0	436.0	52 in.
167.0	179.0	191.0	204.0	216.0	230.0	243.0	257.0	272.0	286.0	301.0	317.0	332.0	348.0	365.0	382.0	399.0	416.0	434.0	452.0	54 in.
173.0	185.0	198.0	211.0	224.0	238.0	252.0	267.0	282.0	297.0	312.0	328.0	344.0	361.0	378.0	396.0	414.0	432.0	450.0	469.0	56 in.
179.0	192.0	205.0	219.0	232.0	247.0	262.0	276.0	292.0	307.0	324.0	340.0	357.0	374.0	392.0	410.0	428.0	447.0	466.0	486.0	58 in.
186.0	199.0	212.0	226.0	240.0	255.0	270.0	286.0	302.0	318.0	335.0	352.0	369.0	387.0	405.0	424.0	443.0	462.0	482.0	503.0	60 in.
192.0	205.0	219.0	234.0	248.0	266.0	279.0	295.0	312.0	329.0	346.0	363.0	382.0	400.0	419.0	438.0	457.0	478.0	498.0	519.0	62 in.
197.0	212.0	226.0	241.0	256.0	272.0	288.0	305.0	322.0	339.0	357.0	375.0	394.0	413.0	432.0	452.0	473.0	493.0	514.0	536.0	64 in.
204.0	219.0	233.0	249.0	265.0	281.0	297.0	314.0	332.0	350.0	368.0	387.0	406.0	426.0	446.0	466.0	487.0	509.0	530.0	553.0	66 in.
210.0	225.0	240.0	256.0	273.0	289.0	306.0	324.0	342.0	360.0	379.0	399.0	418.0	439.0	459.0	480.0	502.0	524.0	546.0	570.0	68 in.
216.0	232.0	248.0	264.0	281.0	298.0	315.0	333.0	352.0	371.0	390.0	410.0	431.0	452.0	473.0	495.0	517.0	540.0	563.0	586.0	70 in.
223.0	238.0	255.0	271.0	289.0	306.0	324.0	343.0	362.0	382.0	402.0	422.0	443.0	465.0	486.0	509.0	532.0	555.0	579.0	603.0	72 in.
229.0	245.0	262.0	279.0	297.0	315.0	333.0	352.0	372.0	392.0	413.0	434.0	455.0	477.0	500.0	523.0	546.0	570.0	595.0	620.0	74 in.
235.0	252.0	269.0	286.0	305.0	323.0	342.0	362.0	382.0	403.0	424.0	446.0	468.0	490.0	513.0	537.0	561.0	586.0	611.0	637.0	76 in.
241.0	258.0	276.0	294.0	313.0	332.0	351.0	372.0	392.0	413.0	435.0	457.0	480.0	503.0	527.0	551.0	576.0	601.0	627.0	653.0	78 in.
247.0	265.0	283.0	302.0	321.0	340.0	360.0	381.0	402.0	424.0	446.0	469.0	492.0	516.0	540.0	565.0	591.0	617.0	643.0	670.0	80 in.
254.0	271.0	290.0	309.0	329.0	349.0	369.0	391.0	412.0	435.0	457.0	481.0	505.0	529.0	554.0	579.0	605.0	632.0	659.0	687.0	82 in.
260.0	278.0	297.0	317.0	337.0	357.0	378.0	400.0	422.0	445.0	469.0	492.0	517.0	542.0	567.0	594.0	620.0	647.0	675.0	703.0	84 in.
266.0	285.0	304.0	324.0	345.0	366.0	387.0	410.0	432.0	456.0	480.0	504.0	529.0	555.0	581.0	608.0	635.0	663.0	691.0	720.0	86 in.
273.0	291.0	311.0	332.0	353.0	374.0	396.0	419.0	443.0	466.0	490.0	516.0	542.0	568.0	595.0	622.0	650.0	678.0	707.0	737.0	88 in.
278.0	298.0	318.0	339.0	361.0	383.0	405.0	429.0	453.0	477.0	502.0	528.0	554.0	581.0	608.0	636.0	665.0	694.0	723.0	754.0	90 in.
284.0	305.0	325.0	347.0	369.0	391.0	414.0	438.0	463.0	488.0	513.0	539.0	566.0	594.0	622.0	650.0	679.0	709.0	740.0	771.0	92 in.
291.0	311.0	332.0	354.0	377.0	400.0	423.0	448.0	473.0	498.0	524.0	551.0	578.0	606.0	635.0	664.0	694.0	725.0	756.0	787.0	94 in.
297.0	318.0	340.0	362.0	385.0	408.0	432.0	457.0	483.0	509.0	535.0	563.0	591.0	619.0	649.0	678.0	709.0	740.0	772.0	804.0	96 in.
303.0	324.0	347.0	369.0	393.0	417.0	441.0	467.0	493.0	519.0	547.0	575.0	603.0	632.0	662.0	692.0	724.0	755.0	788.0	821.0	98 in.
309.0	331.0	354.0	377.0	401.0	425.0	450.0	476.0	503.0	530.0	558.0	586.0	615.0	645.0	676.0	707.0	738.0	771.0	804.0	837.0	100 in.
315.0	338.0	361.0	384.0	409.0	434.0	460.0	486.0	513.0	541.0	569.0	598.0	628.0	658.0	689.0	721.0	753.0	786.0	820.0	854.0	102 in.
322.0	344.0	368.0	392.0	417.0	442.0	469.0	495.0	523.0	551.0	580.0	610.0	640.0	671.0	703.0	735.0	768.0	802.0	836.0	871.0	104 in.
328.0	351.0	375.0	399.0	425.0	451.0	478.0	505.0	533.0	562.0	591.0	621.0	652.0	684.0	716.0	749.0	783.0	817.0	852.0	888.0	106 in.
334.0	358.0	382.0	407.0	433.0	459.0	487.0	514.0	543.0	572.0	602.0	633.0	665.0	697.0	730.0	763.0	797.0	832.0	868.0	905.0	108 in.
340.0	364.0	389.0	415.0	441.0	468.0	496.0	524.0	553.0	583.0	614.0	645.0	677.0	710.0	743.0	777.0	812.0	848.0	884.0	921.0	110 in.

Finishing Yarn-Dyed Fabrics

Dyeing, starching, and pre-shrinking shirtings having colored-yarn effects

By C. Norris Rabold
Union Bleachery

■ NEARLY all shirting yarns are dyed with vat colors or similar fast types. In most cases the vat colors or their derivatives, the stabilized lenco vats, are employed also in over-dyeing colored yarn shirtings in the finishing plant. Both the gray mills and the finishing plants should carefully select from these classes of dyes those possessing the best fastness properties.

There are occasional exceptions to the use of vat colors and their derivatives in over-dyeing shirtings; for instance, in the case of very light shades, such as creams and oysters, where the amount of dye necessary to obtain the shade is very small. Here, direct colors may be employed, since in low concentrations some direct colors are nearly as fast as vats. The direct dyes are ordinarily applied on a pad. In some cases, both the dye and the finishing materials can be applied to the goods at the same time. However, as comparatively few shirtings are tinted in the very light shades, the following discussion will be limited to the application of vat colors and their derivatives.

There are three common methods of dyeing shirtings with vat colors: the jig, the pad-jig, and the continuous machine methods. The continuous machine method is employed almost exclusively where colored yarns are involved. In both of the other processes the fabric is worked back and forth for some time through a bath containing caustic and hydrosulphite. Therefore, if the goods contained yarns dyed with vat colors, these colors would be reduced and made soluble. As a result, they would bleed into the adjacent portions of the cloth.

Continuous Machine Method

The usual method of continuous machine dyeing consists of padding reduced color on the fabric in a two- or three-bowl pad, the goods passing under an immersion roll in the pad box to insure thorough saturation before going into the nip or nips of the pad. The cloth then enters a series of booster boxes containing additional caustic, hydrosulphite, and dye, where further dyeing-in takes place. Each booster box has its separate feed tank containing the reducing chemicals and dyes. After leaving the booster boxes, the fabric passes through several wash boxes containing water. The goods then go through an oxidizing box containing a solution of sodium bichromate and acetic acid, or of sodium perborate. Here the color is changed from the reduced to the oxidized state and neutralization of the remaining traces of the alkaline reducing agents takes place. Following oxidation, the goods pass through another box of water; a box containing a scouring agent, such as soap and soda ash; and then usually through one box of hot water and one of cold. Between each box are placed squeeze rolls so that the goods will have as much excess water and chemicals removed as is possible, before entering the next compartment. The amounts of hydrosulphite, caustic, and other chemicals employed and the temperatures at which padding, oxidizing, etc., are carried out are the same as are used in producing similar shades on fabrics which do not contain colored yarns.

While the colored yarns are exposed to the action of reducing agents in continuous machine dyeing, the cloth is traveling through the dye pad and the boxes containing the reducing chemicals at such a rate of speed, that the dyed yarns are not in contact with them for a long enough time to give the color much chance to spread. Therefore this operation is not likely to cause any bleeding into the ground.

In recent years there has been an increased tendency to over-dye colored-yarn fabrics with the stabilized leuco vat colors. These can be applied on an ordinary pad. After padding, they are developed by passing the cloth through a warm bath of dilute sulphuric or other mineral acid, washed thoroughly, and dried. A common procedure is to take these goods in boxes, pad on the color, and batch wet on a roll. The roll is taken immediately to a jig where the goods are run down through 1 to 2° Tw. sulphuric acid at 120 to 140° F. After beaming up on the other side of the jig, the goods are given several ends in water, soaped thoroughly, rinsed again, and shelled up ready for drying. An alternative method is to develop the leuco vat colors on a continuous open soaper. In this method the goods first pass through one or two boxes of dilute acid, one box of water, several boxes of boiling soap, and one or more boxes of water. After the final rinse, they are ready for drying.

Imperfections

As noted in the previous article on boiling-out and bleaching, colored-yarn fabrics cannot be given a pressure boil with caustic soda. For this reason, goods that contain colored yarns may not have, in all cases, so good a prepare or bottom as fabrics which have been subjected to the usual pressure boil. Therefore imperfections are more likely to show up upon dyeing. These imperfections may be in the form of resists which cause the piece to present a mottled, blotchy appearance or to contain definite white areas. Again, the imperfections may be in the form of heavy spots if any substances are left in the cloth that have particular affinity for the color. As a rule, these imperfections are more prevalent in colored-yarn shirtings which have been over-dyed with vat colors than in those dyed with the soluble leuco vats. In fact, in many cases goods which would present an uneven ground if dyed by the continuous vat method appear perfectly level when dyed with the stabilized leuco dyes. On the other hand, even though the shade be light, the cost per yard for dyeing with the leuco vat types may run somewhat higher than that for tinting with vat colors. There are many exceptions to this generalization, since cost depends not only upon the depth of shade, but also on the cast.

Finishing of shirtings, especially those of broadcloth construction, is a problem that gives the finisher no end of concern. The lower the count on

shirtings, the more difficult it is to produce the desired subdued, silky luster and soft, full hand; keep away from the comparatively firm cambric type of finish; and at the same time get a solid appearance, free from reediness or openness.

Today the majority of shirtings, whether colored yarn or not, are given a Sanforized shrunk or other pre-shrunk finish. In the past the term "pre-shrunk" has been much abused, as goods might contain as much as 5 to 6% residual shrinkage and yet would be classified as "pre-shrunk." Within the last few months the Federal Trade Commission has ruled that cotton piece goods which are sold as "pre-shrunk" must carry labels or tags which show the percentage of residual shrinkage, if any, left in the fabric.

The finishing of colored-yarn shirtings presents a few problems other than those incidental to the general handling of ordinary white or solid-dyed fabrics. Irrespective of the shrinkage requirements, all the goods are usually "starched," this term being used to indicate they are run through a softener, a mixture of starches and softeners, or backfilled. They are then framed and chase calendered. In the case of the regular finishes, the goods are now ready to go to the folding room. If the fabrics are to be pre-shrunk, they are taken off the frames, calendered and go to the Sanforizer or other pre-shrinking machine.

The number and types of finishing mixes applied to any shirting—whether colored yarn, dyed or white—are legion, varying widely from one plant to another, both in the nature of materials and the concentrations used. Therefore, it is difficult to set down definite finishing formulas. However, one may classify the finishes according to the count or weight of the goods. The higher count goods are usually padded through a mix containing 2 to 3 gal. of sulphonated oil to 100 gal. of water. The lower counts, when run in a pure starch finish, usually receive a mixture of starch and oil. Patterns which are made up entirely of colored yarns not showing much white ground, whether of a high or low count, are almost invariably pure starched, whereas patterns in the lower constructions, containing relatively large expanses of white or tinted ground may be given a backfilled finish. A typical pure starch finish consists of 20 to 50 lb. cornstarch or tapioca starch and 1 to 3 gal. sulphonated olive or other oil to 100 gal. water.

A typical backfill formula for a lower-count shirting is 65 lb. cornstarch, 25 lb. dextrin, 100 lb. talc or China clay, and 25 to 30 lb. sulphonated tallow to 100 gal.

It is inadvisable to permit colored-yarn goods to remain wet for any length of time after they have been run through the starch mix, especially if the fabric contains yarns dyed in a heavy shade or if the finish mix contains a large quantity of softening agent. Otherwise some of the surface color may mark off. However, finishing usually is carried out on continuous ranges, consisting of a starch mangle, cans, and tenter frame (or backfilling machine, cans, and tenter), the finisher is not likely to have much trouble from this particular source.

Finishing colored-yarn shirtings

Again, if too much talc, clay, or other mineral filler is employed in the mix, in order to give the goods a solid, closed-up appearance, this material is likely to show through on the face, where it not only tends to lessen the depth and brightness of the shade, but also to give the goods a cloudy, mottled appearance, especially on tinted-ground patterns. In addition, there may be a marked contrast between the back and face of the fabric, even though quantities of tint are employed in the backfill mix. In the case of both pure and backfill mixes, the finisher should make sure that they do not decrease the absorbency of the goods or that they do not cause the fabric to "firm up" or "set up" when subjected to heat, especially if the goods are to be Sanforized.

It is common practice today for the finisher to add to his finishing mix some type of wetting-out agent for the purpose of increasing the absorbency of goods to be Sanforized. He also has found out, often by sad experience, that his softeners must be of the highest quality; otherwise they are likely to break down when subjected to the heat of the Sanforizing operation, causing yellowing of the goods or odor, or both. He tries to avoid, as much as possible, the use of weighting materials, such as glucose or epsom salt, on Sanforized goods, as these materials may either yellow badly under heat or promote the decomposition of the other ingredients in the mix, so that they, in turn, will change shade. In addition, when materials like glucose or a highly soluble dextrin are present in the finishing mix, because of their tackiness when damp, they may cause the goods to stick on the shoes of the Sanforizer, producing moire, shoe drag, irregular selvage, etc. If such defects occur, it becomes necessary to refinish the cloth.

It is common practice to calender shirting fabrics before Sanforizing, in an effort to obtain as nearly as possible the same hand and appearance possessed by regular finished goods. While the majority of Sanforized shirtings are still chase calendered and then Sanforized, in certain special cases it may be found that a hot or a cold five- or seven-bowl plain calender may give a more suitable prepare. If lightweight fabrics, such as shirtings, were Sanforized without any preliminary calendering, they would be likely to lack both the usual luster and hand that the public has come to look for in this fabric. In general, even with the pre-calendering, shirtings which have been Sanforized, except on the high counts, do not look quite so lustrous, or their hand is not quite so full, as the same goods in a regular finish. The finisher of Sanforized goods also has some difficulty in producing a back and face appearance that is the same, but this can be avoided by use of a Duplex Sanforizer. After Sanforizing, the goods are ready to be put up, inspected, and shipped.

(The next article in this series will discuss the processing of colored-yarn underwear fabrics. —Editor)

Circular-Hosiery Defects

Frequently due to knitting-machine vibration; causes, effects, and remedies

By I. C. Moore

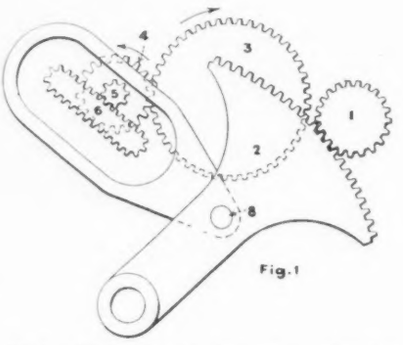
■ CIRCULAR HOSIERY machines, since they are comparatively light in weight and revolve during most of their operating time, are frequently thought of as not vibrating enough to cause fixers any trouble. This might be true if the floors on which the machines are installed are reasonably level and amply supported, if the machines are securely fastened to the floors, if the machines are in line with the countershafts and driving pulleys, and if power is properly transmitted from motors to shafts. Such conditions, unfortunately, do not always exist. Many floors, especially after some years of service, have a tendency to settle unevenly and so throw one or several machines out of line. When a fixer notices a wobbly belt, he should check the machine to see if it is level with the driving pulley. If it is not, it should be leveled at the first opportunity; an uncorrected condition of this kind will set up vibrations which, sooner or later, will disturb the settings.

Often Poorly Anchored

Another cause of trouble is due to the fact that knitting machines are frequently moved from one part of the building to another. Also, many times they are moved from their regular position to a workbench, so that they can be overhauled without the chance of machinists and knitters getting in each other's way, and so that the machinist can have more space in which to work. Because circular machines, in most mills, are set as close as it is possible to get them (30 in., center to center), they must be replaced, after moving, in precisely their original positions. This makes it necessary to run the wood screws, which are generally used to fasten such machines to the floor, into the old holes. When this is done, the screws never hold so firmly as they did before they were removed. On such occasions it is better to use lead screw anchors.

Sometimes a countershaft will vibrate due to the wearing of bearings or because the main drive from the motor is operating jerkily. Such vibration, if not remedied, will affect the machines through the transmission belts, and may cause defective work. For instance, some time ago a fixer noticed one of his machines cutting holes and making fuzzy specks on the hosiery, due to the fact that the sinker cap was out of true with the needle cylinder.

The machine in question was near the driven end of the countershaft, which was connected to the motor by means of a chain drive. When the motor was started each morning, a loud rumbling sound resulted; close observation showed that a distinct jarring of nearby machines also resulted. Subsequently it was found that the motor was not correctly connected to the countershaft, and caused pinching which was responsible for the excessive vibration which jarred sinkers of the machine out of their proper position. Removal of the cause eliminated the difficulty.



Under-drive mechanism for circular hosiery machines devised by George E. Cottrell

Circular hosiery machines are also affected by inherent vibration due to their oscillating movement during knitting of heels and toes. The abrupt reversing of the needle cylinder during formation of heel and toe pockets tends to cause vibration; the segment gear, which drives the cylinder during this operation, has a tendency to set up additional vibration on account of its variation in velocity from beginning to end of a stroke. The cause of this variation lies in the nature of the crank-motion drive, since the connecting link varies in angularity to the direction of motion of the segment gear as the driving gear revolves. This condition tends to produce vibration and is likewise not conducive to even knitting. Thus it can be seen that the crank-motion principle of converting rotary motion into reciprocal motion, although the simplest method, is not the most satisfactory.

The best design the writer has ever seen for eliminating these evils of the crank-motion is a pinion-and-rack gear arrangement for producing the reciprocal motion of the segment gear. This device was illustrated and described in an article in the January, 1936, issue of TEXTILE WORLD, by George E. Cottrell. In that article the device was described as follows:

"Fig. 1 is a sketch of an under-drive mechanism which was conceived by the writer several years ago, when he was having trouble in getting even knitting in a split-foot hose. It will be noted that the crank-motion is entirely eliminated and is replaced by a rack-and-pinion movement.

How It Works

"Gear *1* and segment-gear *2* are the same as used in the present machines. Intermediate-gear *3* gives a motion to gear *4*, which is one-and-one and in the same direction as the drive gear on the main shaft. Gear *4* and pinion-gear *5* are keyed together so that they rotate as one unit. Pinion-gear *5* and rack-gear *6* have a one-to-four ratio. Rack-gear *6* is securely fastened to the housing so that there is just room for pinion *5* to rotate, without binding, in mesh with rack *5*. The rack-and-housing unit is articulated with segment-gear *2* by means of stud *8*, which is securely bolted to segment-gear *2*."

When the rotary-reciprocal motion of the knitting cylinder is effected by a pinion-and-rack design of this type, the motion of the cylinder will be more uniform and the reversing at the end of each oscillation will not be so abrupt.

ADVERTISING PAGES OMITTED

THE OVERSEERS' CORNER

VISITORS IN THE MILL

A Pete and Bill Discussion

"WHAT d'you think of the visitors the super showed through the mill today?" asked Pete, as he and Bill walked toward their respective homes late one afternoon.

"Worse than usual," grumbled Bill. "They didn't know any more when they got through than when they started. Women too. Bah!"

"I think it's nice to show people through the mill occasionally. Builds up good public relations," said Pete, making use of an expression he had heard the president of the company use recently.

"Well, I'm 100% against it," reasserted Bill. "The super always calls over the overseer, introduces him to the party and asks him to show the visitors his department. This takes up a lot of time and gets the help all upset. I don't like it! It's dangerous too; someone may get caught in a machine."

Pete held his ground. "Suppose you were in some other part of the country and wanted to learn something about the local industry? Wouldn't you enjoy going through one of the factories and comparing it with our own here?"

"I don't see any reason for anybody going through this plant unless they've got business here—and that's that!"

Should casual visitors be permitted in the mill?

Letters From Readers

Frankness Helps Department

("Secret Notebooks," Pete & Bill, January, 1939)

Editor, Overseers' Corner:

Bill, you may be right about locking up your black book. Conditions in your company may make that advisable. But if the officials of your company are like most others, they are interested in only one thing about your department: the efficiency of it compared to others. They have little interest in you as an individual; they are interested in your department. So it is possible that instead of holding your book as insurance you might be able to invest it and get dividends from it. Suppose you opened the book to your entire department and one of your men developed a new idea from one of your notes—an idea that doubled the value of your department to the company. Of course, *he* would be given credit for the idea, but *your department* would be given credit for contributing more than others to the profit of the company. There's the big point: profit. That is the only matter of serious concern to the officials. They want profits and more profits. And they have a habit of rewarding those individuals and departments which contribute most to total profits. Think it over—then put that book on top of the desk. It may help your department toward greater efficiency and greater profits.

JOHN E. BEAHN.
(*Missouri*)

Finds Conferences Helpful

(Overseers' Conferences, Pete & Bill, December, 1938)

Editor, Overseers' Corner:

Pete is right. Conferences were instituted for the interchange of ideas and the cooperative solution of weighty and ticklish problems. Of course, like many other good ideas, it can be abused very readily. When this occurs, conferences are merely alibis for getting together to smoke, throw the "bull" and otherwise loaf or waste the employer's time.

Personally, I have gotten a great deal of help from properly conducted conferences. Such sessions were carefully planned, led by one in authority, discussions held within bounds and limited to the problems for which they were called. Questions arising were considered only if pertinent to the major issues, otherwise they were relegated to a future meeting.

Under such a plan, our conferences were short and to the point. Perplexing questions were answered and everyone informed as to a definitly decided course of action. Each of us returned to his duties with his morale strengthened because his viewpoint was considered. He had a part in establishing a definite procedure and felt he was a worthwhile part of a complete organization. And there was no wasted time. —Z.E.S.
(*Ohio*)

Purchasing and the Overseer

("Who Should Buy?" Pete & Bill, September, 1938)

Editor, Overseers' Corner:

There is much that might be said on both sides of the argument by Pete and Bill on "Who Should Do the Buying", but I am inclined to agree with Pete that a purchasing agent will save money for the company, especially if there is a group of mills. I will admit that Bill has a good argument when he asks the question, "How does a purchasing agent know what is best suited for my work?" But on the other hand, both the overseers and the superintendent are busy with getting production, watching cost and waste, so it is hard for them to keep in touch with all the market changes. A purchasing agent, with nothing else to do, is in position to take advantage of a favorable market, especially in regard to staple supplies such as belting, brooms, bolts, nuts and so on. In the case of special supplies, these are usually bought when requisitioned by the overseer. There should be a spirit of co-operation between the overseers and the purchasing department. The overseer should specify exactly what he wants,

CONTRIBUTIONS to the letters and practical helps in "The Overseers' Corner" are paid for when published without regard to length. We use letters (not over 200 words) discussing the material on this page or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute practical helps or kinks which are published (not over 500 words) will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. Contributions of greater than specified length may be given consideration as articles. If these pages interest you —contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42d St., New York.

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and the purchasing office should endeavor to have the order filled as requested. Then when the supplies are received at the supply room, the overseer should check each item and if not as specified it should be rejected. If the proper system of requisitioning supplies is used, Bill will find his rejections to be very few. —L.P.
(Alabama)

Private Records Belong to Company

("Secret Processes," Pete & Bill, January, 1939)

Editor, Overseers' Corner:

No overseer should feel that he has secrets or private records that are not the property of the company he is working for. The company is paying him for the time he works, and these trade secrets and records were no doubt made on the company's time. No well organized company would stand for an overseer having private records that are not available for anyone who needs them. A good company will not allow itself to be in a position to be crippled by the loss of even a good man. Good management guards itself from getting into such a position. As to a man thinking he can run a job better than anybody else, that is a mistaken idea. He should visit some other mills and see if he is anywhere near the top as to running his job. There is always plenty of room at the top of the ladder. —S.S.R.
(Canada)

Should Protect Workers From Usurers

("Loan Sharks," Pete & Bill, October, 1938)

Editor, Overseers' Corner:

I have just read the interesting discussion between Pete and Bill in a recent number and as usual I find myself agreeing with Pete. The class of people who are continually falling into the hands of loan sharks need help and there is no reason why their employers or overseers should not help them. I fully agree with Bill about the workers being allowed to lead an independent life without interference from the mill or management, but there is quite a difference between interference and frindly or helpful advice. There are today many plans by which the honest employee can finance his purchases without falling into the hands of the sharks who charge excessive interest and the overseer can perform a worthwhile service for the employees by informing himself of these plans and then advising his help accordingly.
—Joe B.
(Virginia)

Employees Do Not Expect Relaxation

("Relaxation," Pete & Bill, November, 1938)

Editor, Overseers' Corner:

Bill and Pete seem to have a problem on their hands, but a little applied common sense should help them out. Any textile operative tending a machine in any department of the mill is expected to keep that machine in operation during the time he is in the plant. Breakdowns and accidents, of course, are excepted. In most factories with which I am acquainted, an established rest period other than the lunch hour is unknown. And I think Pete would have a tough time explaining to a group of piece-work machine operatives the necessity of a rest period either for the good of their health or morale. On the other hand, it is difficult in some plants to get piece-work employees to take the full extent of their lunch period. Regarding labor turnover, I didn't think there was such a thing any more in textiles. —R. M. H.
(New York)

Mill Super Writes On Safety Measures

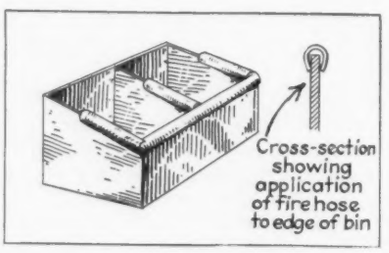
Recently the *Silvertown Chord*, published weekly by the employees of Martha Mills, Silvertown, Ga., carried some especially interesting comments on safety in "The Superintendent's Column" written by W. H. Gibson, Jr., superintendent of the plant. Pointing out that the simplest things some times cause the most serious accidents, Superintendent Gibson writes in part as follows:

"We have noticed the trend of accidents for a number of years and one of the most common causes of accidents in plants is a wet place on the floor. While we sometimes think that this complaint of wet floor is rather far fetched, because on occasions we have gone immediately to the 'wet', floor and could find no wet floor, in most cases we find that there was a wet place from a humidifier, fire escape, leaky pipe and many other things which would cause a wet place on the floor. And this coupled with improper shoe soles or heels makes a doubly dangerous hazard. So, I think it would pay each and every individual to make a careful study of their jobs and anything surrounding them that might cause an accident and call this to the attention of your supervisor who should have same attended to immediately."

Overseers' Practical Helps

Use For Old Fire Hose

A use for old fire hose was noted some time ago at Exposition Cotton Mills, Atlanta, Ga. Bins, from which quills, bobbins, etc., are transferred by pouring into other containers, are improved by covering the "pouring edge" with split pieces of fire hose. As shown in Fig. 4, all rough edges which tend to snag yarn are covered.



Rough edges on bins are eliminated by covering with split pieces of old fire hose

Cleaning Conditioned-Air Ducts

In plants equipped with central air-conditioning systems dirt accumulations in the distribution ducts are often a serious problem. These deposits, composed chiefly of minute particles of atmospheric dust that remain in the air after it has passed the washer, have a tendency to break away from the walls in sizable pieces when the duct vibrates and be carried into the conditioned area with the current of air. If these particles contact the product being manufactured, quality may be seri-

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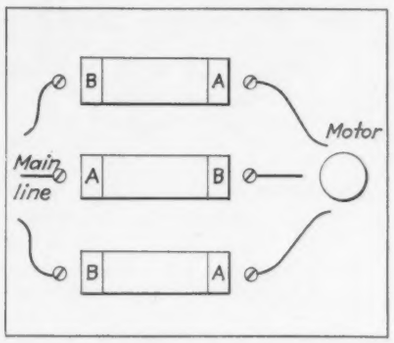
ously impaired, especially if the dirt contains much carbon, as is often the case where the outside air is contaminated with smoke.

The best method of combatting this problem is to install filters, ahead of the washer, to remove extraneous matter in the entering air. However, such a course may not be economically justifiable. In such instances, periodical cleaning of the ducts should be carried out. One large plant does this several times a year, during periods when the process equipment is shut down. A cleaning procedure which has proved satisfactory follows. (1) Cover all machinery and product beneath the duct with canvas tarpaulins. (2) Remove dirt from the inside of the duct with rags soaked in kerosene. (3) Wash off the residual kerosene with water containing soap powder. (4) Cover all air outlet openings with layers of cheesecloth soaked in cottonseed oil for several days after each cleaning. This is necessary to avoid trouble from dirt which may have been loosened but not removed.

S. H. COLEMAN
Roanoke, Va.

Testing Weak Fuses

When looms or other machinery are running sluggish, machinists will generally find that a weak fuse is causing the trouble. Should but one machine on a line run sluggish, the



Cartridge fuses in 3-phase line; test from A to A to A, or B to B to B

fuses may be making poor contact, resulting in inadequate voltage. When a complete line of machinery is affected, one fuse in the line switch may be weak. When the entire shop is affected, the main line box may contain a weak fuse.

To find weak fuses causing low voltage, most machinists use a self-made trouble lamp with one lamp. They will find that weak fuses capable of carrying power will often fail to show defective when so tested. In order to find the fuse that is causing trouble, without shutting down the line, a trouble lamp made with two incandescent lamps will make an excellent testing device. Weak fuses tested with such a lamp will show a weak yellow light compared to the sharp white light that good fuses will cast. Figs. 6 and 7 show the trouble lamp and method of use.

Questions and Answers

Repeat Marks in Plush

Technical Editor:

Inclosed herewith are two samples of a plush fabric, one off the loom and one finished. As you will notice there are so-called repeat marks. These occur on every eighth pick, or a complete cycle of the cam drum. We have tried several methods to overcome this fault but without success; it is my contention the trouble lies in the weave instead of in the loom.

I am enclosing a draft of this particular fabric, which is woven on a German double-shuttle open-cam loom; slack and tight warps are automatically let-off, and the pile warp (two beams) has a gear or positive let-off.

Will you kindly examine the pieces and give me your opinion, or any suggestions as to what or where the trouble lies. (8588)

Your trouble lies in the harness draw, which is incorrect. Other plush mills have also been troubled with a similar condition; perhaps the best way to solve it is through the trial and error method. As a suggestion: your pile draw now has three consecutive dents with a straight draw; this should not be. Try redrawing the pile warp so that there will not be more than two consecutive dents of straight draw anywhere in the warp.

Worn Knitting Needles

Technical Editor:

We have been having trouble with needles wearing at the latch. After the needles have been in the machine only a short time, a groove begins to appear in the latch, near the rivet. Is the needle soft or is the yarn hard? (8545)

The needles are not soft. To make sure of this, they were sent to a needle shop and tested, and all were pronounced hard enough. The yarn is no harder than any other worsted yarn. However, as a rule, worsted yarn is gritty and much harsher than the soft-spun cotton used in knitting; and therefore, will wear the needles a great deal more.

There are other possibilities. The wear on the needles indicates that the machine was set wrong. It seems that the cylinder needles were drawing their stitch across the latch of the dial needles at a point below the rivet. The correct way is to set the machine so that the cylinder needles draw their stitch over the dial needles, just at the rivet. As this part of the needle is thicker than the latch, it will stand a great deal more wear.

Specks in Fabrics

Technical Editor:

I am inclosing herewith samples of fabrics which contain specks or neps. The colored samples have been mercerized previous to dyeing. The specks are more noticeable on goods which have been dyed to a light shade than on those dyed to a darker shade, but are apparent in gray goods as well as in dyed fabrics.

Would you be kind enough to give me your opinion as to the probable cause of this defect? (8547)

Examination of these fabrics seems to indicate that the trouble in each piece is the same. There is some variety in the specks, but they are all very much of one class. Some of these specks are bits of leaf or seed, while others seem to be entirely cotton. I suppose all of these might class as neps, although some of them are very much of the mote type.

Long distance diagnosis of the cause is not dependable. Likely causes include: using low grade cotton from which it can hardly be expected that manufacturing machinery can remove all the dirt and neps; using high production, especially at the card, making it difficult for the machine to do its best work; using cards which are not properly set and not cared for as they should be for this class of work (this might be from expecting the card grinder to take care of too many cards, so that he could not give as much time to each card as he should); running cards too long between strippings, especially if producing at a high rate; and not grinding frequently enough, allowing the wire to become too dull and so producing poor work.

Kirschner beaters can make neps when in damaged condition, but there is considerable dirt here, which leads

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to the feeling that the card is not getting out all it should, either due to very dirty stock or some faulty card situation. It is possible that dirty spinning may contribute to this defect but it hardly seems likely as a cause for all this trouble.

The specks show up worse in light shades because of the dirt present and because the light reflection from such fabrics is greater than from dark shades. The irregularity of surface due to the specks gives enough light reflection in light shades so that they show. In darker shades, the amount of light reflection is so low that surface irregularities are not so obvious. Another factor of some importance is the mercerizing. This adds to the light reflecting ability of the fabric and any little irregularity is much more noticeable in mercerized cloth, entirely apart from any color difference due to motes or dirt.

Dyeing of Elastic Webbing

Technical Editor:

We are enclosing samples of an elastic webbing used in the corset trade, and would appreciate your advising us whether the samples are piece-dyed or yarn-dyed. We know that several elastic manufacturers are piece-dyeing some of the cheaper numbers for the corset trade, and would like you to tell us how this is done; i.e., whether the webbing is run through a starch solution first, or dyed first and then starched, or whether both practices are done simultaneously.

If there is any booklet giving information along these lines, we would appreciate your advising us concerning it. *(8560)*

There is no question but that the webbings submitted were piece-dyed. The tell-tale marks are very distinct on the rubber covering. This operation is accomplished by making the fabric entirely of bleached yarns and then running the goods through an ordinary web-finishing machine which has been equipped for piece-dyeing. Such a machine usually has two size boxes. In the first box is the dye liquor and in the second the starch bath. Whether or not the two baths may be combined depends upon the type of dyestuff employed, the type of material being processed, and the ability of the operator. On some types of fabrics, and with some types of dyes, the dye and starch may be satisfactorily combined; with other types of dye, the starch often affects the shade of the finished goods. We would advise against attempting to combine the two baths, particularly in the case of a beginner.

We do not know of any information concerning these operations available in book form at present.

Throwing Tussah Silk

Technical Editor:

Your Questions and Answers pages have interested me for a long time; and if you will permit, I should like to contribute at this time, as I don't quite agree with the item in your January issue on "Throwing Tussah Silk."

Due to different conditions in various plants, it takes considerable time and practice to find just the right proportion of a wax product, whereas, the use of neats-foot oil and alcohol is a simple method and easily adjusted. While wax in the winding department will work satisfactorily, I found considerable trouble on the 5B's. Ends stick together and, consequently, before the operator is aware of it, quite a number of layers cover the 5B feed rolls, thus causing needless waste. I learned from old tussah throwsters that their failure in clearing lots had been largely due to waste on 5B's and not in the winding. One way of reducing the waste from this source is to use "guide combs" between the feed rolls of the 5B's or additional eyes made out of wire to hold the silk apart on the last lap before running down on the 5B spool.

I fully agree with the first paragraph of your answer, but would make the second one read as follows: Tussah skeins should be opened and laid flat in a layer, sprayed with a mixture of neats-foot oil and alcohol, covered with another layer and sprayed again; this operation is repeated until the lot is completed, and the yarn then allowed to stand for about 1 hr.

It then should be hung full length on poles and steamed for a short time and allowed to remain in average room temperature for about ½ hr. It will be ready for winding any time after. Tussah should not be steamed too long or dried at a high temperature with dry air, as that causes any silk threads to get brittle, meaning additional waste in winding. With a spraying formula of 3 parts of neats-foot oil and 2 to 3 parts of alcohol, Tussah running can be regulated for the softness or harshness of various types on the market, proportionally. To make an even spray-emulsion a little pearl ash (potassium carbonate) is beneficial.

The above data and processes are based solely upon the experience of the writer and no attempt has been made to disqualify wax products.

JOSEPH HAGL, Supt.
Industrial Dyeing Corp. of N. C.

Knit Pattern Fields

Their generation and their use in reproducing a design

By J. FREDERICK CAHILL

THIS discussion of the generation of knit pattern fields and their use in reproducing a design is a continuation of the discussion of this subject in the February issue.

It is seldom necessary for an experienced knitter or designer actually to knit a fabric before he can determine just what form a design field will assume under certain given conditions. A few figures and a little reasoning will show just what will occur in the case of any number of needles in the cylinder, any number of prints in the pressers, and any convenient number of pressers.

Division blocks which form the design field can be made with either vertical or diagonal sides. In either case, distribution of the design figures in the fabric will be the same. If the division blocks are produced with vertical sides, the design field will assume a step formation. See Fig. 1, *A* and *B*. Blocks produced with diagonal sides will result in formation of a diagonal field. See Fig. 1, *C* and *D*.

It is immaterial as to which of the two forms of design field is chosen for use—for the given conditions, the form chosen will be exactly the same, for either 24 plus or 16 minus. However, in plotting the design figure, the direction of lap should be kept in mind. This is not important if the design figure is contained entirely within the design field. But, while a field generated with 5-division pressers and 20-needle divisions is always

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20x20 and contains 400 stitches, the figure will not, in every instance, necessarily be contained entirely within the limits of the field.

When the lap is one or more full presser divisions, either plus or minus, the design figures are disposed in vertical columns. But, if the lap is a few needles more or less than one or more full presser divisions, the column of figures will assume a slanting order. The direction of slant will depend upon whether the lap is plus or minus a given number of needles, and the degree of slant will depend upon the number of needles that the lap is plus or minus a full presser division.

Whether such a slant would be objectionable, is unknown to the writer. However, it is a certainty that design figures can be developed in a knitted fabric, on circular machines, with almost any lap that covers enough needles to generate a field.

In the diagrams, no effort has been made to produce an attractive design; utility in illustrating the conditions has been the sole thought. The design fields proper are contained within the heavy boundary lines, while the heavy cross-lines, every four rows, represent division blocks and serve as aids in taking off presser diagrams. Taken in the order in which they are numbered, the top rows of the five blocks represent the five divisions of one presser. In the same manner, the other three rows of the five blocks represent the five divisions of the other three pressers.

In each of the four diagrams, the design figure has been purposely extended beyond the confines of the design field proper. Whenever this is done in practice, the division blocks should be numbered, and the field should be surrounded by other blocks (also carefully numbered according as to whether the lap is plus or minus), so that the extended portions can be reincorporated in the proper block within the design field in the correct position. When this is done, the diagrams for all of the pressers in their entire form are within the design field proper, and the knitter or designer can take them off with the assurance that the required design will develop as it should, in the fabric.

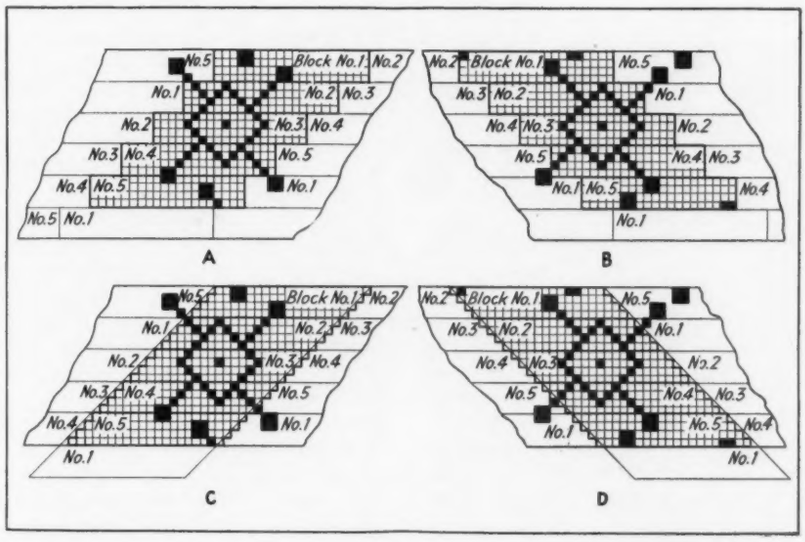

Fig. 1. Design fields of 20 wales width, as seen from the out- or back-side of fabrics knitted on a loop-wheel machine turning counter-clockwise—(A) stepped design plotted for 24 minus or 16 plus, (B) stepped design plotted for 24 plus or 16 minus, (C) slanting design plotted for 24 minus or 16 plus, (D) slanting design plotted for 24 plus or 16 minus

Full-Fashioned Problems

Conditions which cause mismatches and irregular lengths

By RUSSELL D. COLLINS

MUCH has been written on the subject of mismatches due to bad foot junctions and irregular lengths, and no doubt more can be written about it. Mismatches constitute an every-day problem in full-fashioned hosiery manufacture. Regardless of precautions and regular inspection, there is always bound to be a certain percentage of bad junctions and differences in length. However, certain precautions can be taken which will keep them to a minimum.

Uneven twist, hard and soft cones, and differences in the nature of the silk account for many of the headaches in a full-fashioned mill, as far as junctions and uneven lengths are concerned. In addition, variation in tension on the yarn from the time it leaves the cone until it is fed to the sinkers will cause trouble. The old-style felt pad that formerly was used to dampen the yarn is now practically obsolete.

It is well known that these pads could not exert the same pressure on all the threads used in the knitting of a stocking, especially after they had been used for a short time and were cut by constant friction with the yarn. But even with the new tension devices which assure minimum variation in the drag on the yarn mismatches and irregular lengths occur when cones are changed. This undoubtedly means that the size of the cone, the compactness of each cone, and the age of the wound yarn all play an important part in the matter of match and length.

Machine Adjustments

Of course, at times the machine will develop faults which will make bad junctions and irregular lengths prevalent, but in most mills the machines are checked constantly. Furthermore, continual adjustment of the machine is useless as a method of counteracting defects that are in the silk. Of course, every knitting machine operates best when it is in proper alignment.

Knitting foremen, as a rule, do not sanction the adjustment of a machine early in the morning to overcome a variation in length. They realize that as the machine has been standing for some hours, a rise or fall in the temperature of the room may cause certain heads to run tight or loose. Variations in temperature may occur occasionally, even if temperature-control systems are installed. For example, the heating system may not be able to keep up with the outside temperature when there is a drastic change in the weather. Such failures are infrequent, however, and every mill should be

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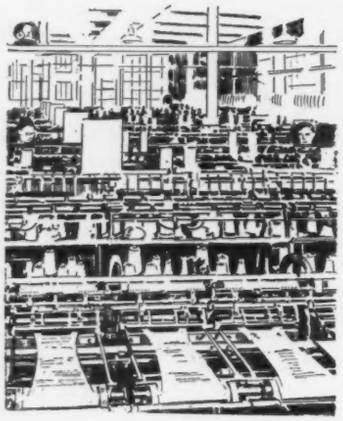
equipped with a temperature-control system, as an aid to better work.

How often does it happen that an operator will have a welt running long, while the courses per inch in the main leg are correct? Again the courses per inch in the welt may be correct, and the leg running long. An exchange of cones for the respective parts will often eliminate this trouble. On all heads that are knitting long, the silk should be exchanged with that on heads which apparently are knitting tight. Then, if there is no improvement in the length of the stocking, an adjustment on the machine may be necessary. However, the very nature of the welt yarn itself may be causing the irregularity. The writer has seen welt silk that would run as much as a half inch too long, no matter where it was tied up. If one welt cone persists in running long or short, where is not much to be done except to go ahead and run it down or to send it back to the throwster.

Small Cones

Many mills which are fortunate enough to have their own throwing plants make their cones just large enough to last for a double shift. This is a good idea because they will have a continual run of cones that are almost exactly the same in size, which will prevent the underlying layers of silk from hardening and thus cause tightly knit stockings. With an 8-oz. cone, when used for knitting two- or three-thread ringless stockings, there is too much chance of the last half of the cone of silk setting, due to the excessive length of time it takes to empty a cone of that size. It has been proved that a leg knit from three full cones may not match the foot knit from three small cones. A mismatch does not occur in every instance, but it happens often enough to warrant certain mills making cones that contain only 3 oz. of silk. To some, use of 3-oz. cones might seem impractical. However, their use is practical, as in the long run the operator will produce just as many dozen, and at the same time obtain a minimum of mismatches and irregular lengths.

It was not so long ago that ingrain hosiery was in vogue. At that time the writer was employed by a nationally known concern that did not wind more than 4 oz. of dyed silk on one cone. Why is there any necessity of winding gum silk in larger cones, just because it is more durable? With ingrain knitting it was always the



hard cones that caused the trouble, and the same is true with the knitting of gum silk. One might protest that, as a rule, ingrain hosiery orders were comparatively smaller than present-day orders of gum-silk hosiery, and that it would not have been good business to pile up stock due to color changes. But the firm referred to made as many as 5,000 doz. pairs of one color, and still did not find large cones practicable. When the company changed over from ingrain to gum-silk knitting, it started with a 12-oz. cone. However, today that mill again is using 4- and 5-oz. cones, depending on the yarn.

Some mills have a rule that when a set of cones is running low the operator must replace all three cones of main silk in the set. This is a good idea as far as it goes, but there is always a possibility that a leg produced from three new cones of silk will be footed with three cones that are running low, in which case the emergency has been met only halfway.

If lengths are not good, it is certain that neither will the match be good. With smaller cones and the new tension devices, there is no doubt that lengths are improved and there are less mismatches. Attention to the other suggestions made above will help the knitter still further to reduce the number of mismatches which are due to conditions under his control.

Lubrication Practices

Discussed by Gaston County Spinners

LUBRICATION practices and problems of cotton spinning mills were analytically discussed at the spring meeting of the Gaston County Division of the Southern Textile Association held last month at Gastonia, N. C. Marshall Dilling, chairman of the group and executive secretary of the association, presided over the meeting. Guest speaker was J. H. Hooten, industrial sales engineer, Gulf Oil Corp., Gastonia, who presented a paper on the history of oil and development of modern lubricants.

In answer to a number of questions, he made the following remarks: Conventional spinning spindles are lubricated with approximately 75-viscosity oil. Long-draft spinning requires 100-viscosity, due to the heavier package. Spinning changed over to long draft usually requires a heavier oil than 75-viscosity, because some of the rolls are bored out and occasionally are in bad mechanical condition. Generally, it is advisable to use a heavier oil on twister spindles, depending on the size of the ring, the package, etc. With a 5½-in. ring cable twister it is sometimes necessary to use 200-viscosity oil. The best practice is to use as light an oil as possible throughout the mill in order to reduce friction and keep down vibration.

A summary of the general discussion follows:

Electric Motors. Electric motors should be oiled and inspected regularly. Although there are a few motors on the market which are sealed up and designed to run for five years or more without oiling, the ordinary motor should be drained and cleaned about every two months. F. E. Whiteside, overseer spinning, Lily Mills Co., Shelby, cited an instance of three motors in his plant which have been running for 34 years without losing a single bearing. They are drained the first Monday in every month and refilled. Two are 100 hp. and one is 75 hp. He does not think a smaller motor should be drained so often as the larger ones, but said that 90 days is the limit. George Grice, superintendent of Lola (N. C.) Mills, told of a case where 63 motors burned out at one time during an electrical storm. Examination showed that the bearings in the motors were worn to a point where the overcharge from the lightning burned them out. Modern motors are built with clearance to stand any

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ordinary lightning charge, providing the bearings are not badly worn.

Comb Boxes and Card Bearings. H. H. Roberts, overseer carding, United Spinners Corp., Lowell, recommended a medium-weight oil for comb boxes, pointing out that light oil tends to fly out in the work and on the floor. Cylinder bearings are oiled daily with medium-weight oil, fast-moving parts once a day, and slowly moving parts weekly. Lighter oil might be used on new comb boxes if it could be kept from flying out. Mr. Hooten described a test made sometime ago whereby it was discovered that the power curve for a line of cards would drop for 15 to 30 min. immediately after oiling and then would return to the regular operating level. Experimentation showed that a No. 2 grease would keep the power curve more uniform than the heavier grease previously used.

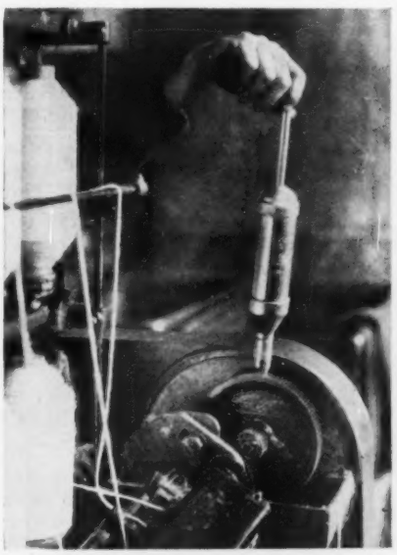
Combers. Charles Ward, overseer carding, Groves Thread Co., Inc., Mill No. 2, Gastonia, read a report entitled, "Something to Think About in Oiling Combers." In his plant cams are oiled daily instead of weekly as in the past. Leather detaching-roll bearings are greased weekly with ball-bearing grease. Steel detaching-roll bearings are oiled with about two drops of heavy oil every 24 hr. Nipper studs under the lap apron should be oiled at least once a week. Fans are oiled every 8 hr., brush shaft is oiled every 24 hr., draw box rolls are oiled every 24 hr., all slow-motions once every week. He reported that oil-impregnated wooden bearings for detaching bearings are satisfactory but do not last very long. Mr. Hooten added that petrolatum, which is about the consistency of Vaseline, is very good for oiling detaching rolls, since it leaves no residue.

Bolsters and Steps on Roving Frames. There was some difference of opinion as to the proper interval for oiling bolsters and bobbin gear. One member reported that they should be oiled weekly. Mr. Roberts oil steps every three months since his machine is equipped with a reservoir, but has not oiled bolsters for several years. Several members reported that they wipe off the top of the spindles with oily waste. Seven members reported oiling spindles and bolsters; two reported that they do not oil these pieces of equipment.

Ball-Bearing Top Rolls. W. N. Williams, superintendent, Rex Spinning Co., Ranlo, said that the best lubricant for ball-bearing top rolls is a light grease applied with a gun. He greases about every nine months, although some advocated greasing only once a year. Mr. Ward reported using a heavy grade of oil instead of grease. This gives satisfactory results, and is used once a year.

Spinning Rolls and Stands. S. M. Cauble, superintendent, Trenton Cotton Mills, Gastonia, said that oil for spinning rolls and stands should not contain any filler so as to penetrate the wicks better. It should not run or spread on the top rolls and cause the cots to become saturated. Oily cots ruin the leather and cause excessive lap-ups. He believes that top rolls and back steel rolls should be oiled at least once every 40 hr. The front stands and front top rolls should be oiled every 8 hr. The top roll does not have to be taken off for each oiling if a good cup is used and the saddle underneath is just touched. He said that a drip cup should be used, rather than a squirt gun. It is possible to use grease on top roll stands if they are constructed for this type of lubricant, but it is not advisable to use it on ordinary stands. Grease is used on twister stands satisfactorily because there is not so much weight here as on spinning stands.

Spinning and Twister Spindles. D. H. Whitener, superintendent, Myrtle Mills, Gastonia, uses a very light oil on spinning spindles weekly and a somewhat heavier oil on twister spindles. Occasionally he takes his bolsters out and cleans them. No kerosene or other solvent is used in the cleaning. Oil is removed from the base by means of a pump. Other members said that it is not necessary to clean bolsters. Chairman Dilling remarked that the oil could be either pumped out or blown out with air. Mr. Ritchie asserted that bolsters should not need cleaning oftener than every three years if a good-grade, light-weight spindle oil is used every fifteen days. Mr. Whitesides oils his spindles once a week, and he added that the spindles are cleaned out thoroughly every two or three years and new oil is added. W. P. Stowe, superintendent, Crescent Spinning Co., Belmont, explained how he uses a No. 2 penetrating oil to cut corrosion from spooler spindles. This same oil proved to be helpful with his spinner and twister bolsters. He uses it in them annually.



Systematic lubrication is essential to efficient operation of textile machinery

Types of Lubricant. Consensus was that the average mill keeps in stock from ten to fifteen different kinds of lubricants. However, for general use four or five were said to be sufficient. Mr. Hooten agreed with this and said that in the average yarn mill, four lubricating oils are enough—spindle oil, general lubricating oil, roller oil, and electric motor or compressor oil. This series will cover special lubricating problems, such as comb boxes.

Twister Rings. Mr. Ritchie reported that lubrication of twister rings depends on a large number of factors, including size of ring, size and weight of package, time between doffs, etc. On a 3-in. ring, he uses grease and runs the frame 16 hr. without stopping. Someone else, he pointed out, may run the same ring 4 or 6 hr. without stopping. Chances are that the man running the shorter length of time would probably put grease on the ring either every other doff or every three doffs. It is difficult to put enough grease on a ring to last for a 16-hr. run. The best grease to use is one which will "go with the traveler when the frame starts and go with the ring." If it throws off, there will be trouble. If oil is used, a drip-cup is helpful. It is possible, he said, for a man on high-class fine counts to have 75% of complaints originate in black, soiled twister rings. Mr. Ritchie believes that the twister hand should oil or grease the twister rings because he is continuously with them. In answer to a question, Mr. Hooten said that on a long doff grease is much better than oil, because it stays more satisfactorily on rings with slots and grooves.

LOOMFIXERS' MANUAL

COTTON SECTION—*Chapter V—(Continued)*

By IVAR MOBERG

Harness Motions

IN THE previous installment, a discussion of dobbies was begun. Setting and adjustment of both single-and double-index, double lift, single cylinder dobbies was discussed. We continue now to the setting of double-cylinder dobbies.

With a shuttle in a box opposite from the dobby, turn the loom until the lay comes up against the protection. Then loosen the driving gear on the crankshaft and turn it until the harnesses are level, with the bottom knife in its inward movement. Next loosen the bevel gear and turn it so that the lower worm on the upright shaft just commences to turn the box chain. Now turn the loom over in running direction until it reaches top center, just before the shuttle is picked toward the box on the dobby side, and set the upper worm on the upright shaft so that it has just finished turning the inside chain cylinder; that is, the dwell on the worm should just begin to hold the worm gear stationary. After this, loosen the clutch plates on the chain-cylinder shafts and set both inside and outside chain-cylinders so that the pegs are directly under the peg-run of the dobby fingers. Then adjust the check wheels on the chain-cylinder shaft so that the check-wheel rolls are down in the hollows of the wheels, thus holding the cylinder in the position outlined above. Now make sure the clutches on the chain-cylinder shaft are correctly lined up in relation to each other; that is, as one of the clutches is disengaged the other must be in position to be engaged without any delay. This is important and should be closely watched.

If the dobby is equipped with a rocking outside cylinder, set the rocking-motion cam on its lowest position and the cam follower in its top position. Time the cam so the rocking motion will move the cylinder at the same time as it would be moved by the worm. Finally, adjust the length of the connecting rod between the cam follower and the sliding clutch so the clutch will engage freely when called for.

The dobbies which have been described are negative harness motions; the dobby lifts the harnesses into the top shed, but has no control over them in the bottom shed. Therefore, springs must be used to pull the harnesses down into the bottom shed. These may be of direct-action or indirect-action pull. In the direct-action-pull type, shown in Fig. C51, two or more helical springs are attached to each harness to pull it down into the shed. The upper ends of the springs are connected directly to the harness by means of leather straps.

There are several types of indirect-action or spring-jack under-motions; a typical one is a double under-motion, adjustable in height so as to give proper spring tension for various requirements. With this type motion, as a harness is pulled down, leverage is increased in favor of the springs and they exert a stronger pull. On the other hand, as the harnesses are lifted into top shed by the dobby the leverage is increased in favor of the dobby, which is thus relieved of much unnecessary labor.

Courtesy Crompton & Knowles Loom Works

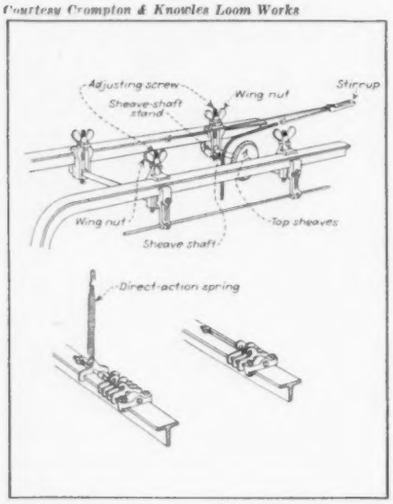


Fig. C51. Direct-action spring motion for pulling harnesses into bottom shed

Harness Mounting

When mounting harnesses in dobby-equipped looms, first lower all dobby jacks into bottom shed. Then adjust the position of the top sheaves (see Fig. C51) by turning the wing nuts on the adjusting screws so that the sheaves shaft will be one-quarter way up in the slide of the sheave-shaft stand. Next place the stirrups

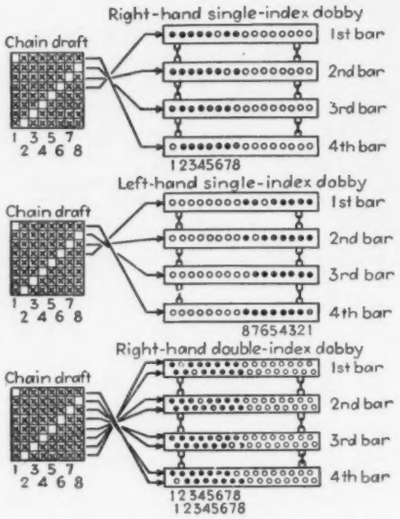


Fig. C52. Chain-drafts and chains for dobby looms

in the notches of the harness jacks so that each succeeding stirrup, counting from front to back, will be one notch higher than the preceding one. If the notches are not sufficient in number to accommodate the full harness capacity of the dobby when moving one notch for each harness, step up one notch for each two harnesses.

Now attach the harnesses to the top straps, making them approximately level. Adjust the height of the harnesses so that they are somewhere near correct bottom-shed position; it is not necessary, however, to be too exacting about their position at this time. Attach the under-motion to the bottom of the harnesses and make sure the connection is in plumb. Then readjust under-spring tension, and level and height of harnesses. The height should be such that the warp ends are well down on the raceplate, as they will rise somewhat when the shed is opened. Properly adjusted, the harnesses should have a slight pitch toward the back of the loom.

Now turn the loom over and insert a few picks by hand. After each of the harnesses has been in the top shed, check the height in the bottom shed a second time. If some of the harnesses are too low or too high, readjust them; if all are too low or too high, they can be brought into proper position by raising or lowering the top sheaves. Next adjust the pull

of the under-motion under normal warp tension so that it will just keep the top straps tight when the harnesses are in the bottom shed. If a spring-jack under-motion is used, make sure the harness connections are not so long that the spring jacks will touch the bottom of the rack, nor so short that they will be forced against the top of the rack. They should have free movement at their extreme positions.

In building dobby chain from a chain draft, first ascertain the order of the drawing-in. If, as in most cases, it is from back to front counting from right to left, place the chain draft to the left of the dobby chain, read the draft down and peg the chain up, or read the draft up and peg the chain down. This is shown in the top section of Fig. C52 for a right-hand dobby; at the center, for a left-hand dobby; the bottom shows a similar chain for a double-index dobby.

If the drawing-in is from back to front, the counting from right to left, and the chain cylinder of the dobby turns toward the center of the loom, these chains will produce a weave similar to the chain draft. That is, if the chain draft appears to have a twill effect, the twill in the cloth will run in the same direction. To produce twill opposition in direction to that in the chain draft, both chain draft and chain should be read and pegged in the same direction.

If the drawing-in is done in front-to-back order, counting from right to left, or if the cylinder turns away from the center of the loom, to produce a weave similar in appearance to the chain draft, the draft should be read and the chain pegged in the same direction.

Chain drafts not showing any twill effect can, as a rule, be pegged either way.

Chain drafts are always read from left to right. Chain bars should be pegged from left to right if the loom has a right-hand dobby, and from right to left if the loom has a left-hand dobby. A chain that produces a right-hand twill with a right-hand dobby will produce a left-hand twill if placed on a left-hand dobby, and vice versa.

It is advisable to place chain bars in a jig form to prevent them from splitting when the pegs are screwed into them; this applies to both new and old chain bars, but is particularly important in the case of new bars.

WOOL SECTION—*Chapter VI—(Concluded)*

By BENJAMIN F. HAYES

Causes of Cut Ends and Picks

CUTTING OF filling yarns sometimes results from the filling becoming trapped by a temple. The yarn may be caught either between a temple and the raceplate, or between a temple and the reed. To eliminate either of these causes simply readjust the offending temple.

Another point at which filling yarns are frequently cut is the mouth of a shuttle box. Determination of the exact cause of such cutting is sometimes extremely difficult, since there are several possibilities which must be investigated. First, it must be ascertained whether the filling is cut while entering the box, as it leaves the box, or while it is dwelling in the box.

If it appears the filling is being cut as it enters the box, it is probably due to a crookedly thrown shuttle. Fit the shuttle into the hole in the picker on the side of the loom opposite to that at which the cutting is occurring, and make whatever adjustments are necessary so that the shuttle will not be forced either toward or away from the reed (see page 74 of August, 1938 issue of TEXTILE WORLD). Also, make sure the reed is even with the front of the box guide, using an ordinary straightedge for this purpose.

If the yarn is being cut as the shuttle leaves the box, it is likely that the box is not even with the raceplate or that there are sharp edges on the binder. Bring the box into level with the raceplate, or smooth the rough edges of the shuttle binder, as the case may require.

If filling is being cut while the shuttle is dwelling in a shuttle box for several picks, there are several possible ways to eliminate the trouble. For instance, if the filling which is being cut is dwelling in the top box, the difficulty often can be overcome simply by arranging things so the shuttle in question will dwell in the bottom box on the opposite side of the loom.

On the other hand, the trouble may not be so simple to remedy. The cutting may be being caused by a crookedly thrown shuttle; it may be the result of a rough spot on some other of the shuttles in use, on which the yarn of the dwelling shuttle catches and breaks; or it may be due to the filling dropping through the dwelling shuttle and becoming caught by the shuttle in the box underneath. To eliminate the first of these causes, correct the direction of the shuttle. To remove the second cause, smooth the rough spot on the shuttle which is causing the damage. To rectify the third fault, insert brushes in the shuttle, as outlined below.

Use brushes made from bristles such as are used in hand brushes. Make a small hole on each side of the shuttle at an angle of about 45°. These holes must be so placed that when the brushes are inserted in them the brushes will press against the filling bobbin, near its tip. Fasten the brushes in the holes either by inserting them in such quantity that they are themselves tight, or by trapping them in the holes with small wooden pegs.

Arrange the brushes so that one will press lightly on the top of the filling bobbin and the other against its underside. Which of the brushes should be on top, and which on bottom, depends on the direction in which the filling comes off the bobbin. The brushes must be arranged in such a manner that filling coming off the bobbin will not go toward the brushes, but rather will be moving away from them. Hence, it must be remembered that, if a change in the direction of the twist in a yarn is made, the brushes in the shuttle must be changed correspondingly.

Rayon decoration filling yarns which weave relatively infrequently sometimes give considerable trouble, as they have a tendency to fly and then become cut. One method the writer uses to keep them in place is as follows: first, have the filling wound on bobbins which are relatively long and thin, rather than short and fat; then, line both sides of the shuttles with rabbit or cat fur. As long as thin bobbins are used the fur will keep the yarn from flying; but fat bobbins press down the fur and nullify its holding effect.

Another method, which many times is successful in preventing filling from being cut at the mouths of shuttle boxes, is to attach a bushy string of cloth between the protector rod and the reed cap. Loose filling from shuttles adheres to the cloth and does not fly about. To make such a string of cloth, take two fillingwise strips of fabric about 2 in. wide and ravel about ½ in. of filling from each side of each strip. Then twist the strips together with a medium amount of twist, and fasten to the loom as outlined above.

STAPLE COTTON FABRICS

By JOHN HOYE
Fabric Technician with W. Harris Thurston, New York

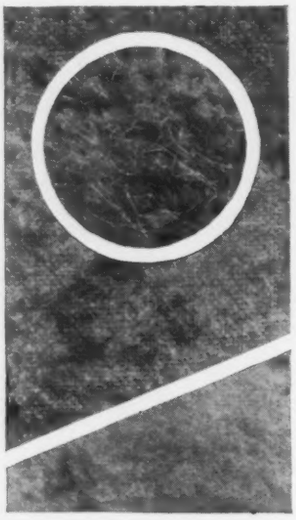
This thirty-ninth installment of Mr. Hoyes' series of articles on staple cotton fabrics—which started in the January, 1936, issue—begins the discussion of cotton flannels.

COTTON FLANNELS are similar to some wool flannels, in that they have a raised nap composed of a mass of surface fibers to give warmth, softness, and, in some cases, absorbency and bulk. The insulation or warmth factor in a flannel depends largely upon the number of air cells or pockets formed by the interlocking fibers of the nap. These cells insulate and thus retain the warmth of the person using or wearing the fabric or garment.

However, cotton fibers do not have the springiness or liveliness of wool fibers and usually flatten under pressure. Therefore, it often becomes necessary to shake the fabric or garment in order to fluff-up or revive the nap. Furthermore, since cotton fibers are comparatively short, they are likely to shed from the fabric easily after they have been napped-up.

Most cotton flannels are made from American cotton, which produces a soft, downy nap. However, China, India, and some kinds of Peruvian cottons are rougher and more wiry than American cotton. Hence, they often are used in flannels, to simulate wool. They are mixed with varying percentages of wool in the manufacture of part-wool blankets, flannels, hosiery, etc.

The basic characteristic of cloths intended for flannel or similar napped finishes is that they contain a soft-spun filling yarn. Because of the soft twist in these yarns, the fibers are looser; thus a nap of surface fibers can be easily raised by the napping machine. As the process of napping weakens the cloth, it is necessary to have a construction of sufficient weight and yarn of enough strength, so that after napping, the cloth will be strong enough to meet required specifications. Also, the cloth must not be over-napped. Warp yarns are always finer than the filling yarns and are spun with standard warp twist, thereby strengthening the fabric. Some mills making good-quality soft-filled fabrics, to improve the strength of the resultant napped flannels, use a strong type of good staple cotton for the filling



36-in. printed flannelette made from 40½-in., 42x44, 3.75 yd. soft-filled sheeting (upper part, back; lower, face)

yarns. Flannels usually are woven 40½ in. wide and finished 36 in. wide. The strength is always considerably less in the finished state than in the gray state, and the weight may be as much as 20% less. Weights range from 2.25 yd. to 5.00 yd. for 36-in. widths (of flannels used for garments).

Sometimes a 2-ply soft-twist filling yarn is used to produce a stronger napped fabric. In some flannels, core yarns are used to produce a stronger fabric. Core yarn is a regular spun filling yarn around which a heavy roving is twisted or folded. When fabrics woven with core yarns are napped, the loose, soft-twisted roving is easily raised, while the inside or core of the yarn is not napped. Thus, the strength is not affected. Core yarns are used chiefly in heavy blanket-robe cloths and in bed blankets. While such fabrics are stronger, they do not always have so great a bulk or thickness of nap as do fabrics in which soft-twist filling yarns are used.

There are several kinds of cotton flannel finishes—some have a light flannel finish on one or both sides; some have a deep, heavy, fleecy nap on one or both sides, and others have a closely sheared suede or felted appearance. Where only a light flannel-finish effect is needed, the fabric is napped slightly with a napper; or the desired nap may be obtained by brushing or by passing the fabric under a sandpaper or emery roll. Therefore it is not always necessary to use soft-filled fabrics for these light flannel finishes—medium and coarse ordinary yarn fabrics often are used. As the heavy, bulky yarns do not have a hard twist, a light nap can be easily raised. Basic cloth is usually sheeting; occasionally twills.

Warp yarns: 18s to 26s for soft-filled fabrics and 12s and 18s for medium and coarse ordinary yarn fabrics. *Filling yarns:* 8s to 16s for soft-filled fabrics and 12s to 18s for medium and coarse ordinary yarn fabrics.

Cotton flannels can be divided into three groups; viz., converted flannels, colored woven flannels, and unbleached flannels.

CONVERTED FLANNELS

For converted flannels, soft-filled sheetings or twills are used as the basic cloths. A large majority of converted flannels are produced in all-white; others are dyed, both pastel shades and dark colors; a considerable yardage is printed. They usually are napped (on one or both sides, usually both), then bleached, dyed, or printed, and finally, brushed or re-run through the napping machine to revive the nap. As a rule, this is done at the mill where the fabric is produced. Sometimes the cloth is given a preshrunk finish. Most converted flannels are finished 36 in.; however, some are finished 27 in. and some 30 in. These are divided into various classes, depending upon their weight, finish, and use. Any all-white flannel may be called domet.

Flannelette is a light-weight flannel which has a light nap on one side. The term usually is applied to printed flannels. Flannelets printed with juvenile patterns are used extensively for children's pajamas, underwear, nightgowns, etc., they are known also as kimono flannels.

Diaper flannel has a high nap for softness and absorbency, and usually is made in 27-in. and 30-in. widths.

Baby flannel is a heavy-weight flannel of plain or twill weave finished in all-white, baby pink or blue, and is used for infant's and children's sleeping robes and suits, bathrobes, etc.

Examples of converted flannels with their gray constructions:

27-in. diaper flannel, 30 in. 44x48 4.00 s.f. sheeting
36-in. printed flannelette, 40½ in. 42x44 4.25 s.f. sheeting
36-in. printed flannelette, 40½ in. 42x44 3.75 s.f. sheeting
36-in. baby flannel, 40½ in. 42x44 2.00 s.f. sheeting

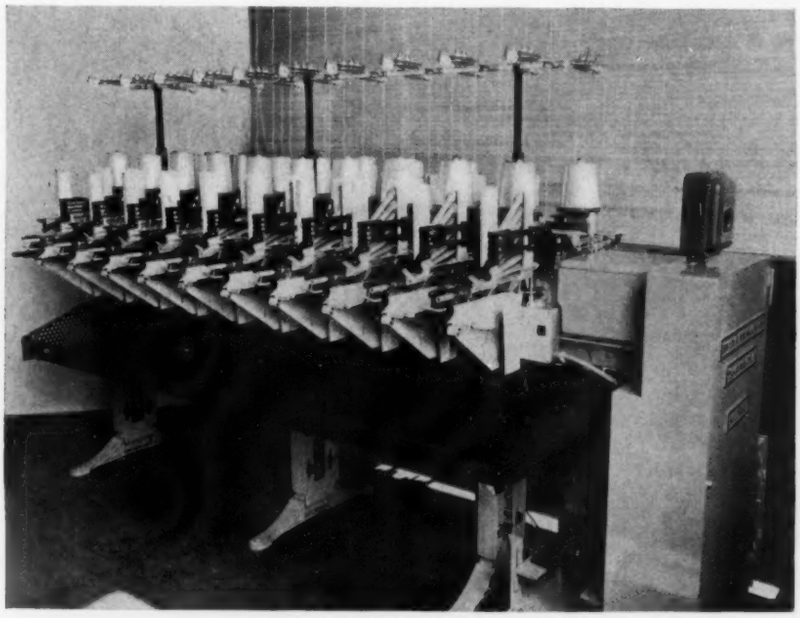
NEW MACHINERY AND PROCESSES

High-Speed, Automatic Bobbin Winder

Development of the Electromatic Bobbin Winder No. 99 is announced by Universal Winding Co., Providence, R. I. This new, high-speed, automatic bobbin winder will be shown next month at the Southern Textile Exposition, in Greenville, and at the Knitting Arts Exhibition, in Philadelphia. The machine automatically removes full bobbins and starts winding on empty bobbins without assistance from the operator. The spindle is stopped in approximately two seconds for doffing, loading the new bobbins, and starting—the complete change being done electrically. The machine is equipped with an automatic bunch builder. It runs either regular or reverse, simply by changing the direction of the motor, this change being effected merely by throwing a switch at the head end of the machine.

Units will be available with up to 100 spindles, a 100-spindle machine requiring only a 3-hp. motor. The winder is two-sided in design, with 50 spindles to a side. In order to simplify the mechanism, two spindles are operated together. Speed of the machine will be approximately 2½ times faster than that of the No. 90 winder, the exact speed depending on the type of yarn and the wind. Floor space required by the Electromatic Bobbin Winder No. 99 is less than half of that taken up by the No. 90 winder. Power required for automatic doffing, loading of new bobbins, and starting of the winding on new bobbins is small, as the power for making the change is on for only 1/100th of a second for each of the three or four steps in the complete doffing operation.

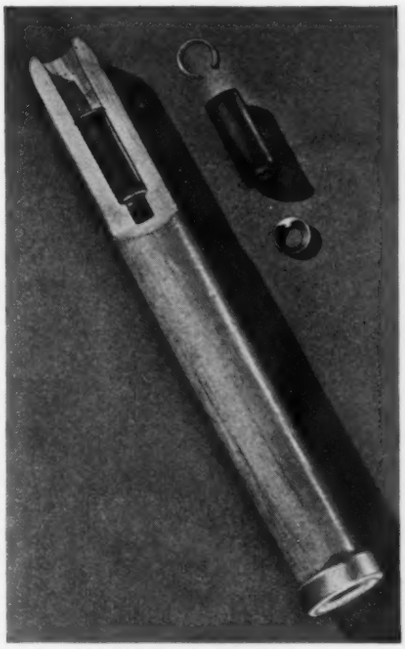
The machine requires a large supply package to take full advantage of the automatic features. Due to the small amount of end breakage and the speed at which doffing takes place, the spindles are in operation for a large part of the time. When a change of bobbins takes place, the empty bobbins roll in from the side. Duties of the operator are simply to keep the magazine filled with empty bobbins and to change the cones or supply packages on the winder.



Automatic Bobbin Winder (Universal)

Bobbin and Spindle

Two developments designed to eliminate vibration of spindles in high-speed, large-package spinning of cotton yarns have been announced by Saco-Lowell Shops, 60 Batterymarch St., Boston. The first of these, the Saco-Lowell cushioned-bearing bobbin, is a regular hardwood warp bobbin, the upper bearing of which is fitted with a rubber bushing. This bushing of rubber possesses certain resilient properties. The effect of the bushing is to assure a close fit at the upper bearing to eliminate roughness or vibration and prevent the slipping of the bobbin on the spindle, this latter function being extremely important.



Cushioned-Bearing Bobbin (Saco-Lowell)

The cushioned upper bearing can be applied to any standard warp bobbin. At the present time negotiations are under way so that this assembly can be applied by the leading bobbin manufacturers. It consists of a special rubber cylinder with its outside diameter adjusted to the chamber formed at the upper bearing, and with its internal diameter arranged to provide the proper fit at the upper spindle bearing. The lower end of the bearing rests against a dished steel washer, which protects the end of the bushing and serves as a guide for the end of the spindle as the bobbin is pushed on by the doffer. The upper end of the bearing is held in place by a retaining ring which can be removed with a special tool in the event that a renewal of the bushing becomes necessary. Later it is planned to adapt the bearing to filling bobbins.

The second development is the Saco-Lowell sleeve spindle designed to carry a hard-fiber or impregnated-paper tube. It can be applied to either the Saco-Lowell McMullan type of spindle or to the roller-bearing or ball-bearing type. In general, the sleeve-tube spindle is constructed by adding to one of the standard spindles a sleeve which furnishes the support for the tube on

which the yarn is wound. There are several types of sleeves used. One type of spindle is made with a wooden sleeve, topped by a steel retaining plug, the lower end butting squarely against the shoulder formed at the top of the whorl. In the second type a metal filler piece is used instead of wood. The third type consists of a metal sleeve, the lower end pressed firmly to the ground, tapered surface of the whorl, the extreme edge rolled into a groove to prevent loosening; the upper end is crimped, with a steel plug rolled inside.

The hard, impregnated tubes are only about one-sixth the weight of the corresponding size in wooden bobbins, and this decrease in weight is reflected directly in a decrease of stresses caused by variations in the degree of dynamic balance. Of greater importance, however, is the fact that the paper or fiber tube is driven by contact with the steel plug at the top of the spindle, the tube itself fitting the taper of the sleeve with clearances varying from 0.008 to 0.012 in. at the lower end. It can be demonstrated that a mass supported at a point above the center of gravity can be revolved rapidly under better mechanical conditions than the same body supported below the center of gravity. This feature of the design also helps to assure operation without spindle wear at the top bearing.

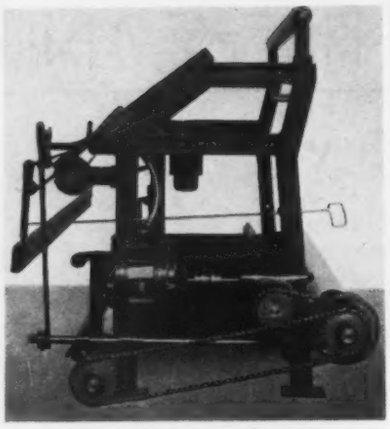
For many years Saco-Lowell Shops has been building sleeve-type spindles for export to South America and Europe, where their use is said to be practically universal. At present there is an installation in operation in this country at Hartsville (S. C.) Cotton Mills, and other installations are being prepared.

High-Hiding Mill White

Said to be of especial interest to the textile industry is a new "Dulux" high-hiding mill white paint which has been announced by E. I. du Pont de Nemours & Co., Wilmington, Del. The new product, which has been sold experimentally for the last two years, is recommended for one-coat work, although the manufacturers point out that where two coats are obviously needed a single coat of high-hiding mill white should not be expected satisfactorily to do the job.

Sewing and Inspecting Machines

A motor-driven cloth inspecting and measuring machine and an improved butt-seam railway sewing machine have recently been announced



Inspecting and Measuring Machine (Birch Bros.)

by Birch Bros., Inc., Somerville, Mass. The inspecting and measuring machine for use in cloth rooms, is designed to handle fabric from a roll to a roll, and is fitted with forward and reverse drives and patented knee control.

The railway sewing machine is an improved design, equipped with a Merrow head. The machine has an arrangement for pulling the cloth tight before sewing, a pressure foot lifter, and an automatic stop. It is motor-driven and fitted with ball-bearing, rubber-tired swivel casters.

High-Speed Extractor

The Suprex high-speed extractor which is being introduced at the Southern Textile Exposition by Tolhurst Centrifugal Division, American Machine & Metals, Inc., 100 Sixth Ave., New York is said to permit production double that heretofore accepted as standard. It is stated the new machine can be operated 48% to 66% faster than former models, handling practically double the number of hourly loads formerly possible. It is asserted that current consumption, per pound extracted, is reduced approximately 50%.

Rayon Opener

Davis & Furber Machine Co., North Andover, Mass., has developed a rayon opener said to operate on an entirely new principle, in that no opening is done at the feed rolls. The opening, it is stated, is all done inside the machine in a series of gentle operations, and the stock is never held while being worked; hence there is a remarkable freedom from fiber breakage and damage. The freedom from short and damaged fiber is said to result in clearer and stronger yarn, with fewer nibs.

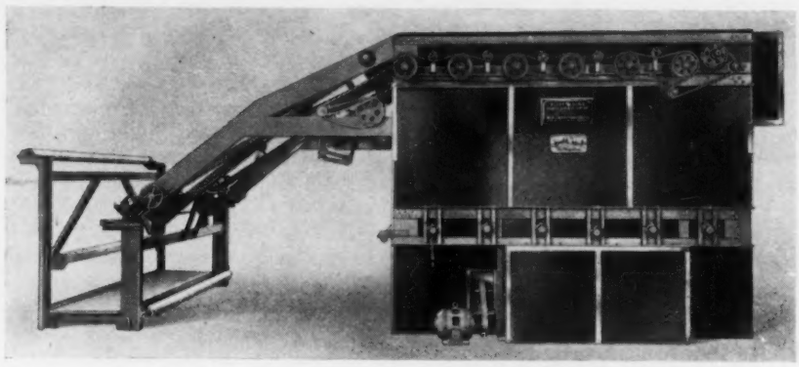
The machine will handle stocks ranging from 1 to 7 in. in length, either matted or in parallel bunches, to be run on woolen, worsted, or cotton systems. The opener is so constructed as to be readily adjustable to give the desired degree of opening, since stock for feeding direct to cotton cards requires a much greater degree of openness than is desirable in stock to be blended and run on the woolen system.

Production ranges from 600 to 1,200 lb. per hr.; the unit is equipped with an automatic hopper feeder; the machine can be arranged to exhaust through a ceiling condenser or the stock can be blown into a bin if desired.

Tenter Dryer

An outstanding advantage claimed for the new cloth tenter dryer manufactured by Riggs & Lombard, Inc., Lowell, Mass. is that it saves approximately 23% in floor space. In operation, cloth passes through the

High-Speed Extractor (Tolhurst)



Cloth Tenter Dryer (Riggs & Lombard)

chamber in vertical loops, instead of in the customary horizontal loops, on a chain equipped with heat-treated Monel pins. The loops form sealed pockets in alternate passes, into which heated air is forced under slight pressure. This air passes through the cloth, removing moisture and securing a 40° to 60° F. temperature drop. Heat is supplied by coils and fans located at the bottom of the machine, the coils being directly under the machine and the fans on both sides.

For mills which lack sufficient headroom to accommodate a vertical machine of the type just described, a horizontal design is offered. This is really a vertical-type machine tipped over on its side, having the same air circulation system as the vertical type.

Plastic Products for Textile-Mill Uses

Application of molded and laminated plastics in the solution of problems in the construction of rayon spinning machines and other types of textile equipment has been announced by Richardson Co., Melrose Park (Chicago), Ill. This company was the producer of molded reel members, bobbins, jet unions, yarn-guide holders, laminated gears, and other parts for continuous spinning machines recently placed in service at the new plant of Industrial Rayon Corp., Painesville, Ohio. Other Richardson parts included brackets, bolts, nuts, washers, and seal rings.

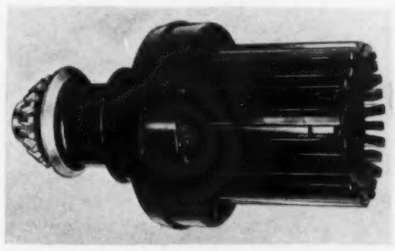
Yarn passes continuously over the reels while it is being washed and subjected to the action of various chemicals. Each reel has interlocking members which presented special molding problems, due to the precision required to accurately control forward movement of yarn on the reels. They are constructed of a special type of Durez molding compound, developed for this purpose by General Plastics, Inc., North Tonawanda, N. Y. This type of Durez, which is a phenol-formaldehyde plastic, was chosen after extensive experiments in search of a product combining the required resistance to chemical action, formability, machineability, proper weight, and capacity to retain certain accurate dimensions and hold up under continuous operation. This material is resistant to dilute acids and alkalis, hydrogen peroxide, and various other chemicals. It has a high gloss finish, and parts can be machined, sanded, or buffed without impairing its properties.

The top and base of the bobbins on which the yarn is wound after spinning, desulphurizing, bleaching, oiling, and drying, are constructed of molded Insurok; the cylinder is made from laminated Insurok. As the bobbins revolve at speeds of 8,000 to 10,000 r.p.m., precision in molding and balancing are requisites.

As was stated in the December, 1938, issue of TEXTILE WORLD, the machines for the continuous process are built by Rayon Machinery Corp., Cleveland, Ohio (a wholly owned subsidiary of Industrial Rayon Corp.). R. F. Bergmann, chief engineer of that company, stated that the process itself is made possible by the ingenious, highly developed reel composed of chemically resistant molded plastic members.

The accompanying illustration is shown through the courtesy of Industrial Rayon Corp.

It is believed that special forms of molded and laminated plastics similar to those mentioned above will find many applications in bleaching, dyeing, and finishing machinery and other textile equipment where resistance to chemical action, strength, smoothness, uniformity of size of parts, comparative lightness of weight, and other specific properties of the various plastics are desirable or essential.



Plastic Reel (Richardson and General Plastics)

Monitor Cleaner

An automatic monitor cleaner said to eliminate the necessity and danger of manual-cleaning of ceilings of monitor-type buildings has been developed by American MonoRail Co., Cleveland, Ohio. The device consists of a rubber drive-wheel operated against the bottom of a track, a high-velocity propeller-type fan which travels the entire length of the monitor on a simple loop of monorail, the whole being driven by a ¼-hp. motor.

Automatic Monitor Cleaner (American MonoRail)

It is stated that production losses due to shutting-off textile machinery under the monitor during manual cleaning are eliminated, and that savings in labor and increases in production are made possible by the use of the equipment.

Improved Cork Cot

Sonoco Products Co., Hartsville, S. C., has recently announced an improvement in the reinforcing construction of cork cots. This has been done by use of a seamless woven fabric tube; the tube forms the inner lining of the cork cushion and takes the strain of adhering to the steel roll off the cork.

The fabric inner lining has a

heavily gummed surface which freezes quickly to the wetted steel roll; the cork cushion, being fastened to this lining, is said to be prevented from bulging or elongation while running, and thus to retain its original density throughout its lifetime.

Useful Accessories for Textile Mills

Valve Positioner. Announcement has been made by Bristol Co., Waterbury, Conn. of a new valve positioner for use on diaphragm control valves, to overcome the effect of friction in the valve stem and top. The device is recommended for use on all air-operated control installations where close control is of importance, and particularly on those where there is considerable process lag.

Welding Fittings. Two features are claimed for the forged steel socket welding fittings recently introduced by Crane Co., 836 So. Michigan Ave., Chicago. One is the deep socket which provides liberal come and go in the assembling of pipe; the other is the fact that the fittings are designed especially for welding, not made from ordinary screwed fitting blanks.

Rust Preventive. Development of a new compound said definitely to inhibit rust and corrosion has been announced by Standard Oil Co. of New Jersey, 26 Broadway, New York. The new compound, known as "Rust-Ban" is available in four non-drying types: semi-solid, solvent, fluid, and semi-fluid. The compound may be sprayed on, brushed like paint, applied in a bath, or in a thin coat by machine.

Electrical Equipment. Two new items have recently been introduced by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. One is a series of heavy-duty field rheostats, designed for adjusting speeds of motors in severe industrial service. These are designated type JM, and consist of a face plate with contact arm and resistors of the tube type assembled as a unit in a frame; the faceplate provides 60-point speed control. The second item is a group of non-reversing linestarters, finding chief application in across-the-line starting of large squirrel-cage motors, and as primary switches for wound-rotor induction motors.

Magnetic Switch. A new a-c. magnetic switch has been developed by General Electric Co., Schenectady, N. Y. for full-voltage starting of single-, two-, and three-phase motors. Principal features of the switch, in addition to its small physical dimensions, are said to be its conservative electrical design, long mechanical life, and low maintenance costs over a long period of time. Basically, the switch consists of a line contactor, with interlock to provide undervoltage protection, and two isothermic temperature overload relays to protect the motor against overheating.

Boarding Hosiery

In the article, "In Boarding Hosiery," which appeared on pages 50 and 51 of our January, 1939, issue, the description of the operation of the semi-automatic machine indicated that two stockings are stripped simultaneously, whereas, actually three stockings are stripped with a single stripping operation. This "three-strip" operation, which greatly increases the productive efficiency of the machine, was incorporated almost immediately after the original "two-strip" model was first announced, and is a feature of all Dual-Heat machines which have been installed in hosiery mills.

The stripping operation of the Dual-Heat machine is as follows: When all forms are covered with stockings and are in the drying position, the operator by touching a hand control, causes three forms to move down simultaneously for stripping. With a single stripping operation the operator removes three stockings. After a brief pause, two of the three bare forms automatically return to the drying position while the operator pulls a stocking on the form remaining down. This charged form upon return to the drying position, automatically brings down the second form of the three previously stripped. The return of the second form properly charged with a stocking brings down, for the charging operation, the third and last form of the series. When this form is returned to a vertical position, a series of three more covered forms automatically move forward into position for stripping, whereupon the cycle just described is repeated.

NEW CHEMICAL PRODUCTS

Fatty Alcohol Sulphate

Announcement is made by E. I. du Pont de Nemours & Co., Wilmington, Del., of a new fatty alcohol sulphate which dissolves in hot or cold water to form heavy-bodied, soap-like solutions with excellent detergent properties. This compound, known as Modinal ES Paste, is expected to be of special usefulness in removing solid soil and loose dye particles to produce brighter fabrics and to impart a pleasing hand to the fabric.

General Dyes

General Dyestuff Corp. announces the following new products: Brilliant Indo Green 3G, an acid wool dye yielding a particularly clear shade of green of good fastness to water, washing, fulling, and sea water; it is recommended for use when very bright green shades of best possible fastness to wet processing are demanded, but high fastness to light is not essential. Fastusol Blue LFBG, a homogeneous direct dye yielding shades of very good fastness to light, and good fastness to alkali, acid, brightening, and rubbing; fastness to water can be improved by an aftertreatment with Solidogen B, this method of aftertreatment making dyeings on cotton slightly greener.

Acid Dye

National Aniline & Chemical Co. announces the following new product: National Fast Light Rubine BL, an acid dye yielding bluish red shades of very good fastness to light; it is recommended particularly for dyeing carpet yarns and dress goods.

NEW PUBLICATIONS

Guidance for the Consumer?

BEHIND THE LABEL; by Margaret Dana; Little, Brown & Co., Boston; Price, $2.00.

Whether or not this treatise on merchandise is well received or thrown out the window depends entirely upon whether the reader is, respectively, a consumer or a manufacturer of merchandise. It is certainly written for the consumer, and seems to hinge on the theory that no shopper knows anything, and that being the case, the author has something to tell "for their own good." In fact it attempts to expose so much that it almost approaches gossip-mongering, and consequently will be discredited to some extent.

The author is completely sincere, but too militantly so. After all one has to remember that quality and style can still be had at a price; that honesty

still exists; and that as long as women are shoppers they will be bargain hunters.

After reading the book this reviewer (a woman), for one, has lost all anticipation in buying (for example) a new spring suit, for it has weakened her faith in her own ability to know good merchandise and it has destroyed her belief in those who would sell it to her.

Behind The Label will probably be a hot number at Women's Review Clubs as it is cleverly whipped together, but it is not entirely fair to manufacturers, retailers, or consumers.

Test Standards for the Consumer

MERCHANDISING TESTING AS A GUIDE TO CONSUMER BUYING; by Mabel Taylor Gragg, in collaboration with Neil H. Borden; Harvard University Graduate School of Business Administration, Boston, Mass.; Price, $1.00.

Admitting that the consumer's plight is not a happy one, the author of this scholarly work states in an impassioned, logical manner the possibilities of merchandise testing as related to consumer buying. She states that the merits and shortcomings of merchandise cannot be determined merely by examination at the time of purchase nor from information supplied by manufacturers or distributors, but must be substantiated by the actual result of use. She admits that labeling of merchandise is needed, but doubts that obtuse technical descriptions are of practical value to the average purchaser.

That evaluation of consumer goods is needed, she is sure, but evaluation standards are necessarily variable, dependent upon the purchaser's income, tastes, and skills, conditions under which the product is used, plus nature of the merchandise itself.

She concludes that after all is said and done the consumers must rely upon the integrity of producers and distributors, for she says, "No amount of specifications, testing, and grading can definitely assure the soundness of merchandise unless there is a presumption of integrity behind it."

An Industrial Town

THIS WAS HOME; by Hope Summerell Chamberlain; University of N. C. Press, Chapel Hill, N. C.; Price, $3.00.

Those who think of Salisbury, N. C., only in connection with mills and industrial life will get a pleasant shock of surprise when they read this delightfully written, intimate story of the early traditions of the town. Reminiscences handed down from mother and father to daughter carry the reader through the years long before "The War" up to the close of the last century.

Much of Salisbury's present attitude toward life is explained by the political and religious leanings of the community and the easy, pleasant, unhurried atmosphere of everyday home-life which the book portrays. Throughout the history of Salisbury, however, runs the theme of whiskey. The payrolls of the town from its beginning were soaked in liquor.

Its present day cotton-textile industry is even due to whiskey, we learn, for one finds the straightlaced, churchgoing folks of Salisbury in natural conflict with the town's main source of revenue.

The final result was a "protracted meeting," a church revival in which all denominations united so successfully that hundreds of employees in the distilleries gave up their jobs in the heat of religious emotion. The town's better element was ready, and created work for them by building one of the pioneer southern cotton mills —the old Salisbury Cotton Mill, the first in the little town.

NEWS OF SUPPLIERS

Fidelity Machine Co., Philadelphia, Pa., has appointed Col. Rupert C. Aycock, with office at 911 Provident Building, Chattanooga, Tenn., as exclusive sales agent for Tennessee, Alabama and Georgia. Included in the line of machines to be handled are the Fidelity universal ribbers, tubular knitting machines, cylinders and dials, knitting attachments, braiding, winding and spooling machines as well as accessories.

Penn Reed & Harness Co., Allentown, Pa., has established a plant in Burlington, N. C., under the same name on Webb Avenue, Burlington, N. C., equipped to manufacture all-metal and pitch-band reeds and carry a complete line of mill supplies. This plant will be under direct supervision of Langley J. Burchill, owner of the business, and will be managed by Roland R. Foulke, assisted by Robert Brader and Frank Burkhart.

George W. Hauck has been made manager of the Engineering Sales Section of the Valve and Fitting Department of Crane Co., Chicago. He has been a member of the Crane organization since 1913.

H. E. Beck is now a representative of the Gastonia (N. C.) Belting & Supply Co. He was formerly with the Page-Madden Co.

Joseph T. Bohannon, formerly with International Salt Co., is now employed by American Aniline Products, Inc., Charlotte, N. C. He is a former resident of Grantville, Ga., and a textile chemist graduate from Auburn in 1937.

Percy A. Legge has published an interesting booklet under the "Thumb Nail Sketches of Interesting Fibers", in connection with the "Rambeau Blends" of French spun yarns made by the Rochambeau Worsted Co., Providence, R. I. The fibers described include angora, alpaca, camel hair, cashmere, China lamb's wool, vicuna.

Graton & Knight Co., Worcester, Mass., has purchased the business and assets of Scherer Leather Co., Cudahy, Wis., to add to its line of leather specialties.

Aridye Corp. announces that William B. DePass has joined its organization as southern service representative. He will work with Chester M. Robbins, who is in charge of sales, with headquarters in Greenville, S. C. Mr. DePass was graduated from Clemson College in 1932; for four years with the Southern Bleachery & Print Works, and more recently assistant superintendent in charge of printing for Ware Shoals Bleachery. Aridye Corp. manufactures and markets Aridye textile colors and in the new Aridye printing process.

Foote Bros. Gear & Machine Corp., Chicago, has appointed W. H. Johnson as purchasing agent. He was formerly purchasing agent for Climax Engineering Co., Clinton, Ia.

Sullivan Machinery Co., Michigan City, Ind., has elected Frederick W. Copeland as president. Mr. Copeland has resigned the presidency of the H. Channon Co., Chicago, to take over his new duties. He was previously connected with the Sullivan Machinery Co. from 1913 to 1934. His father was president of the Sullivan company from 1892 to 1928.

American Chain & Cable Co., Inc., has appointed R. E. Greenwood as district sales manager of the Chicago territory of the American Chain Division, with headquarters at 400 West Madison Street, Chicago, succeeding G. B. Kutz who has been transferred to York, Pa., as assistant to the general manager of sales, American Chain Division. R. C. Brenizer has been appointed Philadelphia district sales manager succeeding Mr. Greenwood.

Frank L. Nason, for many years manager of the central station de-

partment of the Westinghouse Electric & Mfg. Co., Boston, has been appointed New England district manager, succeeding the late J. P. Alexander.

Watson-Williams Mfg. Co., Leicester and Millbury, Mass., has appointed Hubert J. Watson, treasurer

Hubert J. Watson who succeeds Clifton E. Watson as sales manager of Watson-Williams Mfg. Co.

of the company, to the position of sales manager to succeed Clifton E. Watson, former vice-president and general manager, who has resigned. Production, as heretofore, will be handled by Wilbur L. Watson, president and assistant treasurer. Philip L. Spencer will continue as superintendent. The company makes shuttles, heddle frames, heddles and cards. Watson-Williams sales representatives remain the same: G. C. Burbank, 3 Beaconsfield Road, Worcester, Mass., W. F. Daboll, 22 Barnes St., Providence, R. I., D. C. Ragan, Box 1126, High Point, N. C., and E. V. Wilson, 398 Mills Ave., Greenville, S. C.

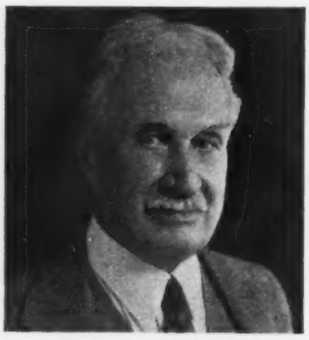
Hagemeyer Trading Co. of Amsterdam, Holland, exporter to the Dutch East Indies and to British Malaya, has opened an office at 50 East 42nd St., New York, to facilitate the purchase of American goods for shipment to its export field. Henry J. Hagemeyer is in charge of the New York office.

General Refractories Co., Philadelphia, has appointed James P. Raugh as general sales manager. Fred M. Miller has been appointed general works manager, and A. C. Shape, acting chief engineer.

United Conveyor Corp., Chicago, has appointed the following district sales representatives: T. E. Nott, 122 Brevard Court, Charlotte, N. C. and W. D. Taulman, 175 Spring St., Atlanta, Ga.

Oakite Products, Inc., New York, N. Y., has just released a special issue of its house organ, *Oakite News Service*, to mark completion of 30 years of service to industry. This issue gives an historical review of development of specialized cleaning methods and materials, and their contribution in helping American industry speed production and keep manufacturing costs low. It includes also a survey of future trends in industrial cleaning research. In further commemoration of the company's 30th anniversary, a two-color brochure will soon be issued, presenting in pictorial form the economic contribution made by many industries to the nation's progress.

David Gessner, head of the company bearing his name at Worcester, Mass., and one of the deans of the textile finishing machinery industry in this country, was guest of honor in connection with his eightieth birthday anniversary at a recent dinner in the Hotel Bancroft, Worcester. Upwards of 40 employees, including many with prewar connections with the company,



David Gessner who has just celebrated his 80th birthday.

joined in congratulating him and presented him with a bronze plaque. Mr. Gessner came to the United States from Saxony in 1876 as American representative of his father, Ernst Gessner of Aue, also a finishing machinery maker.

Alrose Chemical Co. and **Mark Weisberg Laboratories** have recently moved their plant from their former Providence, R. I. locations, to a new, enlarged factory at 180 Mill Street, Cranston, R. I. At the new plant, a full line of synthetic chemicals for the textile industry will be produced as in the past.

Wire Department, United States Rubber Co. has appointed M. P. Lewis, former Eastern District Manager, Wire Sales, to be assistant manager, Wire Sales Department, with headquarters at the company's main office, 1790 Broadway, New York. C. W. Higbee is manager of Wire Sales. H. H. Weber, assistant manager, Wire Sales Department, since 1934, has been appointed commercial engineer of that department. Succeeding Mr. Lewis, is H. J. McDonald who will continue his headquarters at the Boston office.

B. F. Goodrich, Co., Akron, Ohio, has appointed James S. Bonner to handle the sales of Koroseal products to the textile industry in the States of North and South Carolina, with headquarters at 712 Louise St., Charlotte, N. C. He succeeds Robert L. Hart, recalled to Akron for other duties.

D. W. Haering & Co., Inc., have removed their production facilities to new and larger quarters at 2308 S. Winchester St. in Chicago.

Heppenstall Co., Pittsburgh, Pa., has elected C. W. Heppenstall, since 1920 president and treasurer of the company, to chairmanship of the board of directors, and R. B. Heppenstall, formerly vice-president and general manager of sales, to presidency. C. W. Heppenstall has been with the company for 46 years and is of the fourth generation of Heppenstall steelmakers who have been associated with the industry in England and America for 147 years. The company this year will celebrate the fiftieth anniversary of the business which was founded as the Trethewey Mfg. Co. in 1889.

United States Rubber Co. announces the appointment of Frederick P. Jecusco as manager of its Mechanical Fabrics Division in Providence, R. I. Mr. Jecusco was recently sales and general manager of the Chatham Mfg. Co., which, under auspices of Ansonia O. & C. Co., he helped to

Frederick P. Jecusco now manager of U. S. Rubber Co.'s Mechanical Fabrics Division

establish in 1921. He has made notable contributions to the rubber industry.

American Laundry Machinery Co. announces that its wholly owned subsidiary, the Rochester (N. Y.) Engineering & Centrifugal Corp., will hereafter operate as the Rochester Engineering & Centrifugal Division of the parent company.

General Electric Co. is about to erect a $2,000,000 building in Chicago for general sales and service headquarters. The site is bounded by South Canal, South Clinton, West Cabrini and West Arthington Sts.

THE PERSONAL PAGE

P. A. Gwaltney has been re-elected president of the Marlboro Cotton Mills, with plants at McColl and Bennettsville, S. C. **D. K. McColl** resigned as treasurer but was re-elected chairman of the board.

Willard J. Phillips, vice-president of the Holmes Silk Co., Williamsport, Pa., has been elected president and treasurer of the company to succeed his father, W. B. Phillips, who died Feb. 7. **W. E. Vandenhove,** New York, was elected vice-president, and **W. Howard Phillips,** secretary.

R. L. Stowe, textile official of Belmont, N. C., has become president of the D. E. Rhyne Mills. Inc., at Lincolnton, N. C., and Southside, N. C.

Seabury Stanton has been elected president of the Hathaway Mfg. Co., New Bedford, Mass., succeeding his father, the late James E. Stanton. Mr. Stanton has been treasurer.

P. Horace Boivin, of Granby, Que., has been elected president of the Granby Elastic Web Co., as well as president of the Everlastic Corp. of Canada, Ltd.

William Smith has retired as vice-president of the Scranton Lace Co., Scranton Pa., because of ill health. He was with the company 47 years.

Fred L. Smyre, Sr., Gastonia, N. C., president and treasurer of the A. M. Smyre Mfg. Co., Ranlo, N. C., has been appointed president of the Gastonia Cardinals baseball team.

Donald M. Nelson, public representative and chairman of the Textile Wage-Hour Committee No. 1, vice-president in charge of merchandising of Sears Roebuck & Co., Chicago, has been appointed chairman of the company's executive committee and executive vice-president. **Gen. R. E. Wood** becomes chairman of the board and **Thomas J. Carney,** president.

H. H. Lord has resigned as president of Edgewood Textile Mills, Chicago Heights, Ill.

A. J. Maguire of American Viscose Corp., New York, has been elected president of the Silk & Rayon Credit Association.

L. W. (Chip) Robert, Jr., of Robert & Co., Atlanta, Ga., has been elected chairman of the board of Alabama Mills, Inc., Birmingham, Ala. **Paul A. Redmond** continues as president and general manager of the company's 10 plants. **Crawford Johnson, Jr.,** Birmingham Coca Cola bottler, is a new member of the board.

H. Clyde Moore, president of Boston Wool Trade Association, presided when 944 members and guests celebrated the twenty-fifth annual dinner of that organization on Feb. 2 in the main ballroom of the Hotel Statler. At the head table were also **William A. Longshore,** president, Philadelphia Wool and Textile Association; **Walter M. Marston,** president, National Wool Trade Association; **C. J. Fawcett,** National Wool Marketing Corp., Boston; **Edgar B. Moore,** Penn Worsted Co., Philadelphia; **William O. LaFavre,** vice-president, First National Bank, Boston; **Dr. J. W. T. Duvel,** Commodity Exchange Administrator, Washington; **Franklin W. Hobbs,** president Arlington Mills, Boston; **Robert W. Dana,** past-president, Boston association; **L. R. MacGregor,** Draper & Co., Boston; **Robert L. Turnbull,** Wanskuck Co., Providence, R. I.; **A. B. Walls, Jr.,** American Woolen Co., New York; **Herbert K. Webb,** Philadelphia; **Percy E. Sheldon,** vice-president of the Boston association; and **G. Willard Bigelow,** secretary.

Henry K. Janssen, president of Textile Machine Works and Narrow Fabric Corp. and vice-president of Berkshire Knitting Mills, all of Reading, Pa., celebrated his 73rd birthday on Feb. 8. Just six days later, on Feb. 14, his associate in these enterprises, **Ferdinand Thun** also celebrated his 73rd birthday. Mr. Thun is president of Berkshire Knitting Mills, secretary-treasurer of Textile Machine Works and treasurer of Narrow Fabric Co.

Julius Plucker, Jr., is now resident manager of National Dyeing & Printing Co. at Williamsport, Pa. He has been with the Sunbury (Pa.) Converting Works Division of Susquehanna Silk Mills, since 1904.

Archie Drake, vice-president of Bibb Mfg. Co., Macon, Ga., was recently named chairman of the Middle Georgia Midgets' Athletic Association.

Hamilton C. Albaugh, for nearly 22 years with Southeastern Cottons, Inc., and its predecessors, has been named a vice-president of the company.

George W. Henderson, for many years active in credit circles in New York, has joined the Trust Co. of Georgia, Atlanta, Ga. He was recently with Commercial Factors Corp.

W. Ray Bell was relected president and secretary of the Association of Cotton Textile Merchants of New York at a director's meeting Feb. 21. **F. A. Williams,** of Cannon Mills, was elected vice-president; **C. A. Sweet** of Wellington Sears Co., treasurer; and to serve with the officers as the executive committee, **Saul F. Dribben** of Cone Export & Commission Co., **W. J. Gallon** of J. P. Stevens Co. and **D. B. Tansill** of Pepperell Mfg. Co. Previously elected to the board of directors to serve three years were **A. F. Bonsal** of Joshua L. Baily & Co., **W. O. Jelleme** of Pacific Mills, **George Nichols** of Minot, Hooper & Co., and **S. F. Dribben.**

W. Ray Bell

Samuel H. Swint was recently elected president and treasurer of Graniteville (S. C.) Co., to succeed **Lanier Branson** who resigned to become head of Branson Co., Langley, S. C. Mr. Swint has been associated with the company for the last 13 years. Other officers to be elected were: **B. H. Eubanks,** assistant treasurer; **H. J. Griffis,** secretary; **B. F. Sofge,** assistant secretary;

RESEARCH ASSOCIATES of the Textile Foundation meet with the advisory committee on scientific research at the National Bureau of Standards. In the group, besides the six members of the advisory committee, are scientists from Yale, M. I. T., Lowell Textile Institute and the University of North Carolina, as well as those employed at the Bureau of Standards. In the front row, fourth from left, is Franklin W. Hobbs, chairman of the Textile Foundation. At his left is Dr. Lyman J. Briggs, director of the Bureau of Standards, and at his right, Dr. R. E. Rose of E. I. du Pont de Nemours & Co. At extreme left of front row is Dr. Warren E. Emley, of the Bureau of Standards, and next to him is Milton Harris, also of the Bureau. Among those on the stairs are Dr. Harold De Witt Smith of A. M. Tenney Associates; Alban Eavenson of Eavenson & Levering; Dr. E. R. Schwarz of M. I. T.; and E. T. Pickard, secretary of the Textile Foundation.

H. A. Woodhead, F. A. Townsend, and **R. S. Dempsey,** vice-presidents. The chairman of the board of directors is **Leavelle McCampbell** of New York.

Robert R. West, president and treasurer of Riverside & Dan River Cotton Mills, Inc., Danville, Va., has been elected to the board of directors of the Danville Chamber of Commerce.

John A. Law, president and treasurer of Saxon Mills, Spartanburg, S. C., has been elected a director-at-large of the Chamber of Commerce of the United States.

G. M. Vann, superintendent of Eastman (Ga.) Cotton Mills, has been elected vice-president of the company, in addition to his other duties.

R. H. Walker, president and treasurer of Pickett Cotton Mills, Inc., High Point, N. C., has resigned to become vice-president and sales manager of the company.

Miss Alberta Trulock, a 1938 graduate of Wesleyan College, has become editor of the *Bibb Recorder,* weekly publication of Bibb Mfg. Co., Macon, Ga., succeeding **C. Fort Andrews,** resigned. She has been serving as secretary in the company's general office.

Nester Grotelueschen, of Magnet Mills, Inc., Clinton, Tenn., was re-elected chairman of the South-Central Section of the American Association of Textile Chemists and Colorists, at the midwinter meeting.

Stanley M. Anders has been elected president of Rambo & Regar, Inc., Norristown, Pa., following the death W. C. J. Rambo. **W. A. Burke** is vice-president; **B. S. McAllister,** secretary-treasurer; **Ralph S. Winer,** general manager.

Robert T. Stutts, superintendent of the Simpsonville, S. C., unit of Woodside Cotton Mills Co., has been made president of the newly-organized Simpsonville Chamber of Commerce.

A. D. Walker has been elected president of the newly formed Raw Silk Club in New York. The spring golf tournament will be held June 29 at the Westchester Country Club, Rye. N. Y.

J. E. Barbey, formerly vice-president, has been elected president of Vanity Fair Silk Mills, Reading, Pa., succeeding **John Barbey** who becomes chairman of the board.

T. W. Terry has been made president of Sheer Silk Hosiery Co., Sherbrooke, Canada.

Dave Schmidt has been appointed assistant to **Henry Stehli** of Stehli & Co., Inc., New York. He has been with the firm for 20 years.

John M. Hughlett, manager of the Atlanta office of Riverside & Dan River Cotton Mills, has been transferred to the New York office. He is succeeded at Atlanta by **Garnett Robey** recently with Riegel Textile Co.

W. D. Appel, chief, textile section, National Bureau of Standards, has been appointed acting chairman of Research Council of U. S. Institute for Textile Research. **Prof. E. R. Schwarz** of M.I.T. has been appointed vice-chairman.

Luther H. Hodges, production manager of Marshall Field & Co., Spray, N. C., announces the following promotions in the manufacturing division: **Frederic B. Schell, Jr.,** has been made assistant to Mr. Hodges. He will be succeeded as comptroller by **Walter J. Dreves,** of Chicago. **L. N. Hale,** has been appointed manager of all piece goods operations and will handle all relationships for these products with the selling agents. **W. C. Munnecke,** retail operating manager, has been transferred to the manufacturing division office in New York.

Robert C. Boger, Jr. has resigned his position with the Quartermaster's Corps and is now connected with Bailey Dye Works, Inc., Philadelphia.

Roy E. Bradley, formerly the Chattanooga representative of North American Rayon Corp., has been appointed district sales representative in Greensboro, N. C. **H. M. Bailey, Jr.** will be transferred from Greensboro to the main office at New York to assist in general promotional and sales activities. **Fred K. Johnson, Jr.** will take over the Chattanooga district.

N. M. Cranford, secretary and treasurer of the McLaurin Hosiery Mills, Asheboro, N. C., has accepted a similar position with the Cetwick Silk Mills of Asheboro, also.

J. K. Dickson has been elected secretary of the Tufted Bedspread Manufacturers' Association, with headquarters in Dalton, Ga.

Raymond S. Burrows, former works manager of the Hopewell, Va., plant of Tubize Chatillon Corp., has been promoted to the position of comptroller and assistant to the treasurer of the company.

Alexander E. Adam, has retired, after serving as manager of the Ontario Mill of Canadian Cottons, Ltd., at Hamilton, since 1908. He is succeeded by **W. M. Boyd.**

Russell McKinney of Chattanooga, Tenn., son of T. H. McKinney, vice-president and general manager of the American Yarn & Processing Co., Mount Holly, N. C., has accepted a position with that company.

Thomas W. Frissell, Middletown, Conn., has been appointed sales manager of the Frissell Fabric Co., which is headed by his father **Frank H. Frissell.**

L. H. Rice, general superintendent for Alabama Mills, Inc., Birmingham, Ala., resigned recently and went to Opelika (Ala.) Mills as general manager, succeeding **A. S. Thomas.**

Karl Nixon has become general superintendent of the Newnan (Ga.) Cotton Mills, succeeding **R. A. Field, Sr.,** resigned.

Frederick B. Hathaway of Woonsocket, R. I., was elected president of National Association of Textile Dyers and Finishers at the recent annual meeting in Providence.

Lawrence D. Shea has been appointed superintendent of the winding and knitting department of Propper-McCallum Hosiery Co., Northampton, Mass. He will be assisted by **Daniel Hourihan** in the Northampton mill and by **Dolan Rowe** in the Florence Mill.

Alexander Mower, formerly with the Sayles Finishing Plant, Saylesville, R. I., has become superintendent of dyeing and finishing at the Kanmak Mills, Kulpmont, Pa.

Thomas K. Leinbach has succeeeded **C. A. Hoffman** as plant superintendent of Vanity Fair Silk Mills, Inc., Reading, Pa. **Earl Wickfield** succeeds Mr. Leinbach as advertising manager in the New York Office.

Herbert C. Gates has been appointed superintendent of the E-Z Mills, Inc., Bennington, Vt.

J. C. Bartlett has been appointed New England representative of yarn sales for Cannon Mills, succeeding **Harold Barker.**

Joe Reynolds, New England representative of Munsingwear, Inc., for 20 years, has been appointed manager of the New York office.

Oscar Wainwright in the service of American Woolen Co. for 38 years, the last 20 of which were as overseer of wet and dry finishing at the Wood Mill, Lawrence, Mass., has retired. He was tendered a testimonial by overseers and section hands at Merrimack Valley Golf Club. He is 72 years old.

W. L. Bross, power plant superintendent at Ninety-Six (S. C.) Cotton Mills and related mills has been made chief engineer of the three units.

Frank Saunders, for 19 years with Naumkeag Steam Cotton Mills, Salem, Mass., is removing to the Philippine Islands where he will aid in operating a cotton mill.

Herbert E. Fulton, formerly overseer of finishing at Sanford (Me.) Mills, has taken position in charge of finishing at Atlanta (Ga.) Woolen Mills.

Frank Petrea, who recently resigned as superintendent of Swift Mfg. Co., Columbus, Ga., is now superintendent of Samoset Cotton Mills, Talledega, Ala.

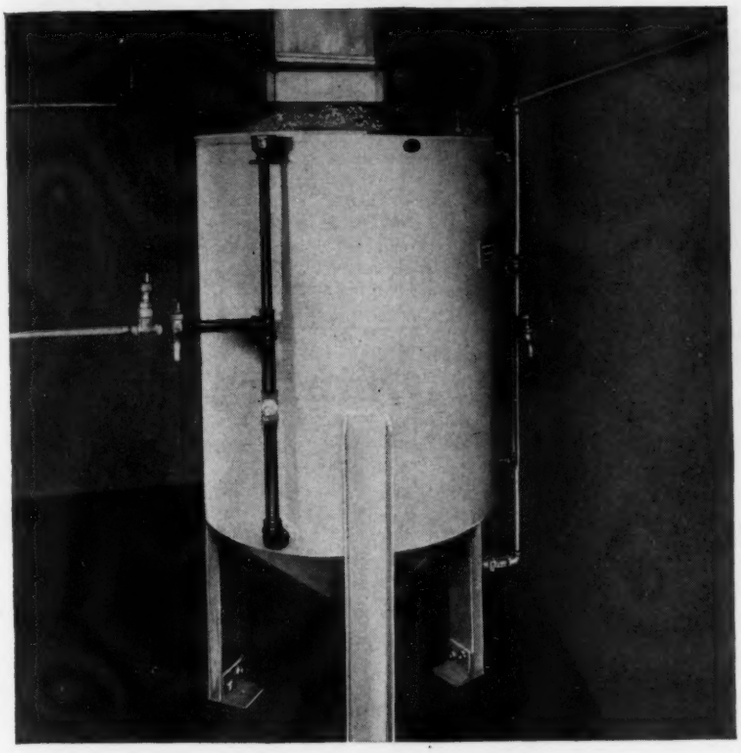
S. R. Powers has resigned as superintendent of Jackson Mills, No. 3, High Shoals, N. C.

C. L. Gaffney is now overseer of weaving at Leward Cot-

Pacific Mills has divided its business into three major sections each with an operating head responsible for the merchandising, manufacturing and selling functions of his section as follows: Worsted and Woolen Section headed by **E. D. Walen,** general manager, Lawrence, Mass.; Northern Cotton and Rayon Section headed by **H. G. Nichols,** vice-president, Boston, Mass., covering mills at Lawrence, Mass., and Dover, N. H.; Southern Cotton Section headed by **H. G. Simonds,** vice-president, Boston, Mass., covering mills at Columbia and Lyman, S. C. **Irving Southworth** continues in charge of manufacturing operations as agent of northern and southern units on cottons and rayons. New York sales and merchandise division managers of cottons and rayons continue as at present. **Ernest D. Gilman** has been transferred from Lawrence to act as styler and assistant to **H. M. Walker,** manager of Dept. 3 men's wear.

American Viscose Corp. announces that its sales development department, now managed by **E. S. Kennedy** is organized as follows: **K. M. Currier** is assistant manager. **H. B. Garden** heads the acetate division assisted by **P. W. Brown. J. A. Webber** heads the viscose division. **F. G. Carroll** heads the staple fiber division. **F. C. Wedler** heads the dyeing and finishing of all fabrics. Mr. Carroll comes from Judson Mills and Mr. Wedler from the Hampton Co. **W. D. Benson** has charge of viscose yarn sales assisted by **J. H. Hammes. Wm. N. Chace,** at one time selling agent for Lawton Mills Corp., has joined the sales staff. **Gerald Tompkins** superintendent of Lewistown, Pa., plant has been placed in charge of the new Front Royal, Va., plant. He is succeeded at Lewistown by his assistant **William D. Silcox.**

4 WAYS TO SAVE MONEY IN MAKING BRINE FOR EVERY USE IN THE TEXTILE PLANT*



* The Lixate Process is now being used to produce clear, pure brine for every use in textile plants—including dyeing, salting out dyes, regenerating zeolite water softeners. An important saving in many mills is the use of Lixate Brine made from Rock Salt (sodium chloride) to replace Glauber's Salt (sodium sulfate) in some textile operations. Ask for information.

The Lixate installation at left is in the plant of W. S. Libby Co., Lewiston, Maine, where Lixate Brine is used in dyeing textiles.

In different plants, the Lixate Process for Making Brine is prized for different reasons. Some superintendents emphasize the cleanliness of the process. Others are enthusiastic about the constant supply of crystal clear, fully saturated brine that is always on tap.

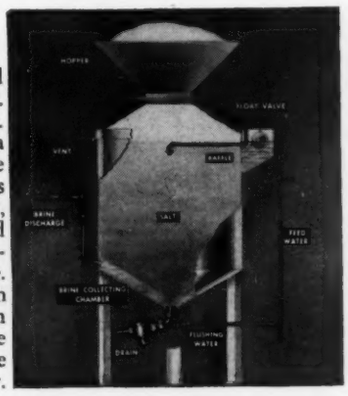
In *every* plant, the Lixate Process is most highly prized for the savings it makes. It saves in four important ways. It cuts down the cost of handling salt—the cost of making brine—and the cost of distributing brine throughout the plant. In addition, users report that it saves as much as 10% or 20% of the amount of salt required, due to elimination of waste.

Savings are due to the automatic operation of the Lixate Process, the production of brine from Rock Salt, and elimination of labor or power costs for agitation. This simple, economical method of producing crystal clear brine is a development of the International Salt Research Laboratory. The advice and counsel of this outstanding salt authority is offered through the International Salt Advisory Service to all who use salt in industry.

You are invited to submit any problem you may have in the use of salt or salt brine, without obligation. Write for a copy of the Lixate Book, describing and illustrating installations in textile plants as well as all other types of industrial plants. If you prefer, ask to have a Lixate engineer call and explain the economies you can make right in your own plant.

SAVINGS FROM AUTOMATIC OPERATION

Rock Salt, of recommended grades, is placed in the hopper. It flows by gravity to the Lixator. Fresh water is admitted by a spray nozzle with float valve automatic control. Salt dissolves without agitation, is self-filtered, becomes fully saturated, and flows upward through a collecting chamber to a discharge pipe. Operation is automatic—with no cost for manual labor from the time salt is placed in the hopper—producing clear, pure brine in any desired quantity.



The LIXATE REG. U. S. PAT. OFF. Process

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For all textile purposes from a single fibre to heavy duck.

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Quality « » Service

ton Mills, Inc., Worthville, N. C.

Ralph Carter is now superintendent of Schwarzenbach Huber Co., Front Royal, Va., succeeding **W. C. Deming,** resigned.

John S. Mann, Auburn graduate, is now production manager and assistant overseer of the cloth room at Callaway Mills, Manchester, Ga.

Joe Crayton, formerly of Munford, Ala., has become overseer of carding at Talledega (Ala.) Cotton Factory.

G. E. Fogle, formerly second-hand of dyeing at Renfrew Bleachery, Travelers Rest, S. C., has been made foreman of Lowell Bleachery, South, Griffin, Ga.

H. J. Straussberger has been named superintendent for Julius Kayser & Co.'s new hosiery plant at Hattiesburg, Miss. **G. A. Boadwee** will be office manager.

W. Arnold Schaller, lately head chemist and superintendent for Carl Stohn, Inc., has joined Mount Hope Finishing Co., North Dighton, Mass., in charge of a new department to specialize on dyeing and finishing of fabrics involving covered rubber threads.

Obituary

Allen J. Strickland, Sr., 76, president of Strickland Cotton Mills, Valdosta, Ga., died at Miami, Fla., late in February.

A. Ellsworth Leinbach, 76, president of J. G. Leinbach Co., Reading, Pa., founded by his family in 1861, died Feb. 24.

Benjamin Wadsworth Putnam, 76, retired woolen mill operator, wool merchant and inventor of wool scouring equipment, died in Boston, Mass., Feb. 10.

John H. Olldorf, 79, proprietor of the Olldorf Silk Co., Peckville, Pa., died Feb. 16 in a Scranton, Pa., hospital.

William B. Phillips, 77, president and treasurer of the Holmes Silk Co., Williamsport, Pa., with which he had been connected for 50 years, died Feb. 7 at his home in that city.

Francis Garant, secretary and treasurer of Sunshine Hosiery Mills, Murfreesboro, Tenn., died recently.

Walter S. Griffin, 63, Greenville, S. C., cotton dealer, died recently at his home following a heart attack. He was head of Cooper & Griffin, Inc., at one time among the largest cotton firms in the world. He will be remembered for having originated the plan of "call cotton" now universally in use, and for three times cornering July cotton which touched a high of 43.75c.

Frank R. Appelt, 53, president and treasurer of Warrenton Woolen Co., Torrington, Conn., for the last 15 years, died Feb. 17 after a 6-months' illness. He was born in Austria, and as a boy worked for the Frank Slater Co., Webster, Mass.

Daniel H. Hartman, 77, one of the founders of the United Underwear Mills, Boyertown, Pa., and senior partner, died Feb. 16.

Arthur B. Claflin, 81, at one time a partner in the former H. B. Claflin Co., New York, founded by his father, died Feb. 1.

Charles Orleman, 73, who recently completed his 50th year of service with James Talcott, Inc., New York, died Feb. 4.

Emil O. Spindler, 65, machinery importer and American representative of Ernst Saupe, Saxony, died March 1. For 10 years prior to 1906 he manufactured knitted gloves. From 1908 to 1937 he was associated with importation of Dubied knitting machinery.

H. A. Norris, 54, founder and head of Colonial Knitting Mills, Philadelphia, died in January.

Benjamin E. Meservey, 61, for 20 years an executive of the Lewiston (Me.) Bleachery & Dye Wks., died on Feb. 22.

George D. Adams, executive vice-president of Chase Bag Co., Cleveland, Ohio, and active in the bag trade for over 50 years, died early last month.

Duncan McAllister, 71, retired cashier of American Thread Co., New York, and with that company for over 30 years, died late in January.

John O. McKean

John O. McKean, 67, president of Foster Machine Co., makers of winding machinery, died late last month. He was with the company for 40 years.

Adolph Scholler

Adolph Scholler, 55, vice-president and treasurer of Scholler Bros., Philadelphia, makers of textile soaps, softeners, etc., died Feb. 12. He was one of the founders of the company in 1907 but spent the following 11 years as dyer in hosiery mills. He became actively engaged in his firm in 1918 and was instrumental in developing new products as well as contacting the trade.

Charles J. Alexander, 74, retired woolen expert, at one time manager of the Woonsocket mill of Stephen, Sanford & Jordan, died in Larchmont, N. Y., Feb. 22.

John D. Phillips, 81, retired executive of W. F. Read & Sons Co., Philadelphia, died Feb. 9.

Frank B. Hodges, 84, founder and treasurer of the Hodges Finishing Co., Dedham, Mass., died Feb. 25. He founded the company in 1910.

Donald E. Hewat, vice-president of Strong Hewat Co., North Adams, Mass., died Feb. 21.

Joseph U. Hoexter, 82, member of the old firm of Wallace & Hoexter, woolens, New York, died in February.

William W. Nichols, 32, member of Cox Foundry & Machine Co., Atlanta, Ga., died in mid-February at Chester, S. C.

William H. Kehrer, 81, one of the organizers of the Rollins Hosiery Mills and for 30 years operator of the William Kehrer Hosiery Co., died in Des Moines, Ia., in mid-February.

George W. Goudy, 69, general representative, foreign manager and a director of the Philadelphia (Pa.) Quartz Co., died in Highland, N. Y., Feb. 7. He was with the company for over 40 years.

Col. Frederick T. Walsh, 79, proprietor of Thos. Leyland Machinery Co., Inc., Readville, Mass., died Feb. 4 after a year of retirement. His textile experience included a number of years as general manager of the Hamilton Print Works, Lowell, Mass., and agent of the Lowell (Mass.) Bleachery. In 1904 he joined the Leyland company, serving for a time as vice-president and general manager. He was on the staff of Governor Greenhalge of Massachusetts, and active in the Dry-salters' Club.

John F. McGinniss, 55, textile engineer and salesman with Whitin Machine Works, Whitinsville, Mass., died in that town March 2 after long illness. He started with the firm in 1907 as a draftsman.

Harry T. Hodges, since 1926 merchandise manager of work clothing fabric department of Pepperell Mfg. Co., died in New York, March 3.

John A. Hird, 43, superintendent of the Clifton, N. J., plant of Samuel Hird & Sons, died March 4. He was the fifth and youngest son of Samuel Hird the founder of the company.

Ernest Boivin, president of Granby Elastic Web Co., Granby, Que., died recently.

William P. Bradbury, 53, vice-president and general sales manager of the Consolidated Ashcroft Hancock Division of Manning, Maxwell & Moore, Inc., Bridgeport, Conn., died in January. He joined the company as office boy in 1902.

J. Herbert Ogden, Sr., 81, formerly an executive of American Dye Wood Co., Philadelphia, died Feb. 21 in Lansdowne, Pa.

Arthur A. Tiffany, president of Vermont Spool & Bobbin Co., died Feb. 3 at Burlington, Vt. He joined the spool company in 1904 and became president in 1926.

Robert N. Hathaway, 84, for many years engaged in the mill supply business at Fall River, Mass., died recently.

Clarence W. Fowler, 62, purchasing agent for Cosmos Imperial Mills, Ltd., Hamilton, Ont., died recently in the Hamilton General Hospital, shortly after being struck by an automobile.

Richard E. Murray, former superintendent of Border City Mill and Union Cotton Mfg. Co., Fall River, Mass., died at his home in that city on Jan. 31.

Albert W. Slocum, 72, former agent of the Cocheco Mfg. Co., East Rochester, N. H., died recently at Fort Lauderdale, Fla.

Robert H. Stewart, 48, superintendent of the Goodyear Clearwater Mills, No. 2 plant, at Cedartown, Ga., died Feb. 9. He was with the Goodyear Co. in New Bedford, Mass., before becoming associated with the mill at Cedartown in 1929.

Edwin G. Morrison, 76, agent of the Merrimack woolen mills of M. T. Stevens & Sons Corp., Dracut, Mass., died at Lowell, Mass., on Feb. 3.

Just Installed–Annual Return 87%

The Terrell Bobbin Box Hoist and Bobbin Conveyor-Elevator used with two Type K Bobbin Strippers, as shown above, can't be beaten for lowest possible bobbin cleaning and handling costs.

The **Bobbin Box Hoist** lifts boxes of bobbins to be cleaned and dumps them onto a special hopper at machine feeding level. A single hoist can serve one to four machines. Saves time, energy and space. Fast—Automatic.

The **Bobbin Conveyor-Elevator** carries cleaned bobbins away from the cleaning operation, depositing them in full size filling boxes or storage bins.

Special Conveyor Systems worked out to meet any conditions. Bobbins cleaned on one floor or building delivered to another. Eliminate handling costs, reduce bobbin inventory, save space, etc.

*For **minimum handling** and **maximum efficiency** in bobbin cleaning consult*

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Charlotte, North Carolina

The SINKER WITH THE PATENTED
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GIVES YOU...
ESS BREAKAGE
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Means Real Saving to You
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If you are now a customer—you know this.
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MILL NEWS

Cotton Mill News

Southern Mills Corp., Oxford, Ala., has placed its branch mills at Anniston and Munford, Ala., on the market.

Muscogee Mfg. Co., Columbus, Ga., has engaged Robert & Co., Atlanta, Ga., to prepare plans for expansion project to cost over $300,000.

Social Circle (Ga.) Cotton Mill Co., is now being equipped with eight Whitin cards, eight Saco-Lowell drawing frames, two Saco-Lowell lap winders, seven Woonsocket long-draft roving frames, 16 long-draft spinning frames and a Barber-Colman spooler and warper.

Summerville (Ga.) Cotton Mills have disposed of their local waterworks station and system to town officials.

Naushon Mills, Inc., New Bedford, Mass., recently organized to take over the Dartmouth Mills, has work under way on modernizing property and equipment, concentrating all machinery in one building. Arrangements have been made for an RFC loan of $370,000. Amos H. C. Brown is president; and Walter E. Davis, treasurer.

Pierce Bros., Ltd., New Bedford, Mass., closed for nearly three years will resume full capacity operations early in March on fancies and novelties. The 540 Draper automatic dobby looms sold recently out of the Neild Mill were purchased by Pierce and with a number of dobby looms from the former Page Mill, bring the new looms to about 1,000.

Locke Cotton Mills Co., Concord, N. C., which closed down several months ago, will be reorganized and reopened.

United Spinners, Inc., Lowell, N. C.—Mill and property of this company have been acquired by Coit M. Robinson, Lowell, and associates, who will operate in the future. The Peerless Spinning Co., Lowell, and Insulated Yarn Co., Charlotte, N. C., owned by the same interests, are not included in the sale, and will be continued in operation as heretofore.

McAden Mills, McAdenville, N. C., are expected to resume operations at an early date, following purchase of the plant by Robert L. Stowe, of Belmont, N. C. The transaction was made possible by an RFC loan.

Dunean Mills, Greenville, S. C., will construct a 42x121 ft. building, with Fiske Carter Construction Co. in charge, in which 4,000 twister spindles will be installed.

Judson Mill, Greenville, S. C., plans abandoning the No. 2 unit, transferring equipment to the No. 1 unit.

Newlands & Co., Ltd., Galt, Ont., has installed a complete new Babcock-Wilcox and Goldie-McCulloch type "H" Stirling boiler, designed for 160 lb. steam pressure capable of producing 32,500 lbs. per hour.

W. L. Poore, formerly with Stauffer & Dobbie, Galt, Ont., has opened a mill in St. Marys, Ont., on towelling and like woven goods.

Dominion Textile, Co., Ltd., recently placed orders for 56 Saco-Lowell long-draft cotton ring-spinning frames totaling 19,890 spindles for installation in the company's Merchants Branch in Montreal. Saco-Lowell has completed installation of 43 ring-spinning frames in the company's Montmorency (Que.) Branch, involving 13,174 spindles.

Wool Mill News

Charles W. House & Sons, Inc., Farmington, Conn., has incorporated to manufacture woolen cloth with a capital of $180,000.

Cummins Benedict, Inc., Putnam, Conn., has been established to manufacture woolens by E. Leroy Cummings, of Philadelphia, and C. Le Grand Benedict, of Putnam.

Pondicherry Mill, Bridgton, Me.—Harry C. Templeton, of Bronxville, N. Y., has taken the option on this mill released by B. M. Kaufman, of New York, who recenty started operations there. Mr. Templeton who was agent for Assabet Mills of American Woolen Co., for 9 years, will carry on from where Mr. Kaufman left off. Cushman C. Morse, formerly of Assabet, will be mill manager and R. H. Fox, superintendent.

Camden (Me.) Woolen Co.—Federal Court has failed to confirm the sale of property of this company to Georges River Woolen Mills, Warren, Me., which recently tendered a bid at public auction. It is proposed to hold another sale in near future. B. F. Matthews, Jr., is receiver.

Mann & Stevens Woolen Co. plant at East Brookfield, Mass., liquidated at auction Feb. 2 brought $9,800.

Farr Alpaca Co., Holyoke, Mass., through its directors, is considering several plans which may result in reopening portion of the plant. The liquidating committee has been

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1. **Warp Drawing Machine**
   —*Drawing flat steel heddles*
2. **Portable Warp Tying Machine**
   —*For tying cotton, rayon and silk*
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   —*Spooler equipped with improved and quick adjusting yarn cleaners*
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   —*For cotton mill machine shops*
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PARAMOUNT Dual Heat Hosiery Finishing Machine

CREATING Incomparable Quality in Hosiery Finishing and Establishing Production Figures that are truly amazing, the Paramount Dual Heat Machine will revolutionize and simplify your hosiery drying and finishing methods.

Compare this Machine with your present equipment. You will find that it requires less square feet of floor space per dozen than any existing method of finishing; less steam consumption — heating is direct; less power — a one-quarter horsepower motor operates the entire machine; less investment per dozen — reasonably priced; less upkeep — built to render years of service; and production possibilities with quality work that cannot be challenged.

Machines will pay for themselves in direct savings to you.

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Paramount Textile Machinery Company

Main Sales Office

538 S. Wells St., Chicago, Ill.

MILL NEWS

authorized to continue negotiations through March.

Whittall Mills, Worcester, Mass., has been granted a $900,000 loan by RFC.

Fergus Falls (Minn.) **Woolen Mills,** closed for some time, has been purchased by Thomas J. Bowen of Cedar Falls, Iowa, for $8,000. He plans to overhaul the plant and install some new machinery.

Harris-Emery Co., Boscawen, N. H., on Feb. 16 suffered the fourth fire in about two weeks, causing considerable loss. Investigation by State police failed to show any evidence of incendiarism. Losses from the fires is estimated at $20,000.

Gonic (N. H.) **Mfg. Co.** has moved part of its finishing equipment into a newly constructed two-story addition.

Stephen Spinning Co., Manchester, N. H., is constructing a new boiler room.

Maurice Lobsitz, Nutley, N. J., has increased the picking capacity of his garnetting plant from 60,000 lb. to 100,000 lb. weekly and the carbonizing capacity from 30,000 to 60,000 lb.

Joseph Benn Textiles, Inc., Greystone, R. I., have been organized to take over and suc- with local mill, and will conceed the Joseph Benn Corp., tinue operations without interruption as heretofore. C. G. Robinson, vice-president of the old firm, is president of the new; H. H. Wardle is vice-president and F. C. Dumaine, Jr. is treasurer.

Pocasset Worsted Co., Thornton, R. I.—Dissolution of this company without appointment of a receiver has been approved by Superior Court. Mill has been idle since last October.

Badger Worsted Mills, Grafton, Wis., are considering erection of one-story addition for warehouse and other service. Cost close to $20,000.

Rayon & Silk Mill News

Middletown (Conn.) **Silk Co.**—Property of this company, including machinery and equipment, was sold recently at public auction.

Willimantic, Conn. — A new silk weaving and throwing company will occupy the Bridge Street plant of Willimantic Silk, Inc., and the Corn Spinning Co. The new company, as yet unnamed promises a weekly payroll of $3,000. Plans are to operate 150 looms on three shifts. Harry Hightman and Alex Rosin (New York) are officers.

Southern Tissue Mills, Inc., Rockingham, N. C., which will be housed in the old Midway Mill building, has been chartered with a capital stock of $200,000.

Emaus (Pa.) **Fabrics Corp.** has been organized to take over and operate local silk mill of J. H. Fredericks, idle for a number of months. Mr. Fredericks is president of new company and P. R. Wentz, vice-president. Mill equipment will be improved.

Stehli & Co., Lancaster, Pa., have disposed of 250 old looms and plans to replace a portion of this group with modern machinery.

American Viscose Corp., Lewistown, Pa., is planning the erection of a three-story, 40x90 ft. acid regeneration plant.

Ingram Spinning Co., Nashville, Tenn., has plans under way to expand its production on spun rayon yarns. Ernest Jones is president; A. M. Gordy, superintendent.

Celanese Corp. of America, Pearisburg, Va., will start actual construction of its New River plant on April 1.

Royal Textiles, Inc., Walhalla, Va., have been organized to operate a silk and rayon mill, by J. R. Clark and Robert S. Thompson, both of Walhalla.

M. E. Binz Co., Ltd., Danville, Quebec.—Fire of unknown origin recently destroyed part of this rayon plant with loss to equipment and stock amounting to nearly $100,000.

Textile Weavers, Ltd., Grand Mere, Que., have plans under way for one-story addition. Cost estimated close to $50,000, including equipment.

Associated Textiles of Canada, Ltd., Louiseville, Que., is completing installation of new carding and spinning for manufacture of staple rayon yarns, including Whitin long-draft frames especially adapted for spinning staple up to 2½ in. The firm is also placing in the same mill, 150 Draper Model XK automatic rayon looms, replacing older types of looms which are being scrapped.

Courtaulds (Canada), **Ltd.,** Montreal, Que., plans one-story addition to mill at Cornwall, Ont., estimated to cost in excess of $100,000, with equipment.

Knitting Mill News

Jackson, Ala.—A company manufacturing hosiery, name temporarily withheld, has

MILL NEWS

closed negotiations with city officials for construction of one-story mill, to be occupied under lease. It is estimated to cost $55,000, exclusive of equipment. Installation will include 24 modern hosiery machines and auxiliary equipment.

Homestead Mfg. Co., Inc., Jasper, Ala., organized to operate a hosiery mill on a Federal homestead project, has awarded general contract to Daniel Construction Co., Birmingham, Ala., for one-story mill at $49,500, exclusive of equipment. S. R. Gibbons, Martin Bldg., Birmingham, is project manager.

Harry V. Costello Co. has opened a plant at Bridgeport, Conn., discontinuing its Pottsville, Pa., plant. Tuckstitch underwear is manufactured.

Bear Brand Hosiery Co., Chicago, Ill., has let general contract to Hughes-Foulkrod Co., Philadelphia, Pa., for two additional stories to present three-story and basement mill, 100x170 ft., at Kankakee, Ill. Cost over $50,000, with equipment.

Cascade, Md.—J. B. Eader, general manager of Waynesboro (Pa.) Knitting Co., has acquired former factory of Blue Mountain Chocolate Co., Cascade, and will remodel and equip for new knitting mill.

Harris Silk Hosiery Co., Springfield, Mass., has been ordered liquidated by the court following report from Walter L. Stevens who found the company insolvent.

Loma Knit Works, Inc., 12507 Linwood St., Detroit, Mich., have been organized with capital of $50,000, to operate a mill.

Nalven & Son, Inc., New York, N. Y., plan one-story addition to mill in Cliftondale Park district, Clifton Forge, Va., with equipment for increased capacity. Cost estimated close to $40,000.

Holt Hosiery Mills, Graham, N. C., have purchased from Robert Reiner, Inc., Weehawken, N. J., Einsiedel-Reiner Combi machines and heelers. This plant will have 16 of these machines when installation is complete. The product of 2500 doz. weekly will be sold in the greige.

Hudson Silk Knitting Co., Charlotte, N. C., has begun production in the second unit of the Oakhurst division with 20 machines; 26 additional machines have been ordered for this unit to be ready for operation by May.

Grenaco Knitting Mill, Everett Lake, N. C., has been sold to M. L. Bales of Thomasville, general superintendent of the Ragan group of hosiery mills, and G. J. Johnson of High Point, N. C. It will be operated as the Johnson &

A Group of Profit-and-Loss Statements

	1938	1937
Industrial Rayon Corp.	$184,410	$262,210
Riverside & Dan River Cotton Mills	−1,017,227	1,270,464
Naumkeag Steam Cotton Co. (Nov. 30)	125,424	.....
American Woolen Co.	−4,911,503	−1,854,902
Marshall Field & Co.	3,492,238	−1,654,452
Gotham Silk Hosiery Co.	237,797	351,159
Cabot Mfg. Co.	−241,444	−129,732
Arlington Mills.	−818,399	342,464
Phoenix Hosiery Co.	120,175	135,980
Cleveland Worsted Mills Co.	−102,705	−51,673
McCampbell & Co.	76,889	199,334
Durham Hosiery Mills.	98,346	170,176
Fruit of the Loom, Inc., B B & R Knight	25,000	−494,905
Pacific Mills.	−2,531,245	−2,073,763
Tubize Chatillon Corp.	281,934	1,439,939
Gosnold Mills Corp.	−226,038	33,938
Pilgrim Mills.	−9,000	76,945
Boott Mills.	−6,361	7,402
Belding Heminway Co.	322,243	490,770
Beacon Mfg. Co.	118,000	502,208
Davenport Hosiery Mills.	262,687	231,260
Hartford Rayon Corp.	−42,647	168,449
Brighton Mills.	−14,697	34,422
Worumbo Mfg. Co. (Nov. 30)	−326,090	.....
Winsted Hosiery Co.	50,827	63,817
Soule Mill.	−72,833	40,000
Russell Mfg. Co. (Nov. 30)	−219,399	58,350
Riverside Silk Mills (Canada)	78,957	82,095
Rollins Hosiery Mills.	145,616	116,910
Mohawk Carpet Mills.	−1,485,901	1,242,084
Burson Knitting Co.	−36,547	−2,278
Pierce Mfg. Co.	−161,328	−132,000
Belding-Corticelli, Ltd. (Canada)	97,803	.....
Saratoga Victory Mills.	−107,667	36,486
New Jersey Worsted Mills (Gera Mills)	64,818	1,461
Pannill Knitting Co.	46,941	49,935
Monarch Knitting Co. (Canada)	−53,183	24,009
Harding Carpets, Ltd. (Canada, Oct. 31)	1,617	60,320
Guelph Carpet & Worsted Spg. Mills (Canada, Sept. 30)	81,268	202,220
Bruck Silk Mills, Ltd, (Canada, Oct. 31)	296,722	329,955

Minus sign (−) indicates loss, other figures are profit. Where day of month is given figures are for fiscal year ending then.

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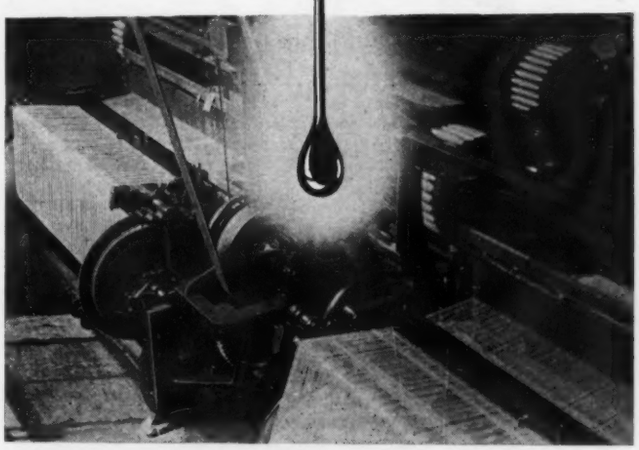

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Designed — Constructed — Guaranteed
By
HUNGERFORD & TERRY, Inc.
CLAYTON, NEW JERSEY
Also **INVERSAND** Zeolite Softeners, Chemical Feeders, De-Oiling Filters and **BASEX** and **HI-BASEX** Greensand Zeolites

MILL NEWS

Bales Hosiery Mill, with 105 machines and 55 operatives.

Plymouth Hosiery Mill, High Point, N. C., was destroyed by fire Jan. 26; loss $20,000.

National Weaving Co., Lowell, N. C., will be equipped with 10 new Reiner-Schneider & Reuthner high-speed tricot machines, 168-inch width, for manufacturing run-proof underwear goods.

Thomas H. Moore, North Wales, Pa., has leased space for a full-fashioned mill in the Montgomery Mills property.

London Knitting Mills, Philadelphia, Pa., have leased space in building at Parrish and 28th Sts., and will remove from Huntington and Palethrop Sts., to new location.

Pure Wool Sweater Mills, Inc., and **Oxford Knitting Mills, Inc.,** Philadelphia, Pa., affiliated organizations—Alexander B. Adelman has been appointed receiver.

Rodgers Hosiery Co., Philadelphia, Pa., has completed installation of 10 new knitting machines and auxiliary equipment at its Palmetto Mills unit at Laurens, S. C.

William Scholes & Sons, Inc., Philadelphia, Pa.—David Bortin has been appointed receiver.

Slatedale (Pa.) **Knitting Mills** controlling interest has been bought by M. K. Levy, president of Glasgow Hosiery Co.

Excel Hosiery Mill, Union, S. C., has begun work on a plant addition. It has installed 25 additional machines.

Norris Hosiery Mills, Bell Buckle, Tenn., have increased production to approximately 600 doz. prs. of children's hose a day. The mill opened last fall, with M. F. Norris as president and Burton Norris as general manager.

Appalachian Mills Co., Knoxville, Tenn., has arranged with RFC for a loan of $500,000 to be used for general operations.

Kenmore Hosiery Mill, Fredericksburg, Va., recently installed 21 additional full-fashioned machines to double output.

Gate City (Va.) **Hosiery Mill** has started operations with 15 operatives, this number soon to be doubled.

Galax (Va.) **Knitting Co.** will increase its capacity. Contract has been awarded to Arthur Lineberry for addition to provide 6,000 sq. ft. floor space, and 24 of the newest type of half-hose machines have been purchased.

Mason Knitting Co., Acton, Ont., children's knitted underwear, has moved its plant into the idle Bearmore Leather Co.'s warehouse in that town.

Processing Plant News

Joseph Bancroft & Sons Co., Wilmington, Del., has filed plans for one-story addition to Kentmere mill, and will begin erection at once.

Congress Piece Dye Works, Paterson, N. J., has been placed in hands of Anthony Ammirato as receiver.

Sanco Piece Dye Works, Garnerville, N. Y., have recently enlarged the plant, and with the addition of new equipment, have tripled capacity. Louis F. Hall is president. The plant is engaged in finishing spun rayons, and other rayon fabrics. The new machinery includes Palmer tenter machine, tenter frames, calenders, jiggs, etc.

Armco Finishing Corp., Burlington, N. C., has been sold to the Burlington Mills Co. The plant at Greensboro, N. C., was not included in the sale.

Burlington (N. C.) **Dyeing & Finishing Co.** has awarded general contract to Bryan & Bayliff Co., Burlington, for one-story addition.

Elder Finishing Mills, Burlington, N. C., have been granted a charter to operate, with an authorized capital of $10,000, and were scheduled to open on March 1. The building and equipment of SYW Hosiery Mills, Inc., have been leased for the purpose. D. M. Elder, W. C. Elder and Joseph Shoffner are the principals.

Lee Dye Works, Inc., Philadelphia, Pa., have leased space in local industrial building at A and Clearfield Sts., totaling about 45,000 sq. ft.

Perennial Dye & Print Works, Inc., West Warwick, R. I., are considering expansion in mill for increased production. A new power house recently been completed.

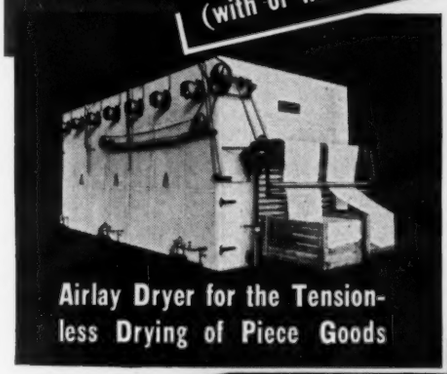
Palmetto Print Works, Greenville, S. C., which has not operated for some time, will be dissolved. This action was voted by the stockholders who met recently.

Acme Hosiery Dye Works, Pulaski, Va., have awarded the contract for a one-story building, 82x200 ft. The building program and equipment will cost around $150,000.

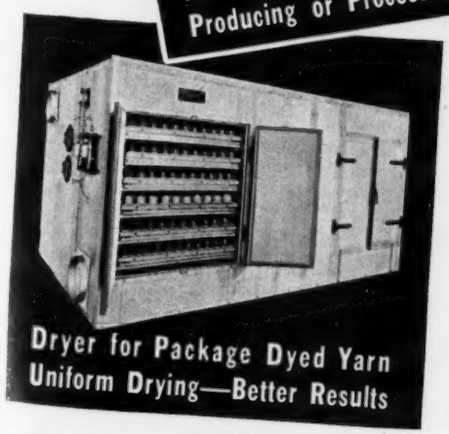
New

PROCTOR DRYERS

Festoon Dryer for Piece Goods (with or without Rolling Girts)


Airlay Dryer for the Tensionless Drying of Piece Goods

Automatic Skein Yarn Dryer for Producing or Processing Plants


Dryer for Package Dyed Yarn Uniform Drying—Better Results

Super Dryer for Raw Stock Saves floor space, steam, power

You wouldn't run the risk of operating your plant without carrying Fire Insurance. . . .

Don't run the risk of loss of production, loss of orders, poor drying and high drying costs, by operating out-of-date dryers. . . .

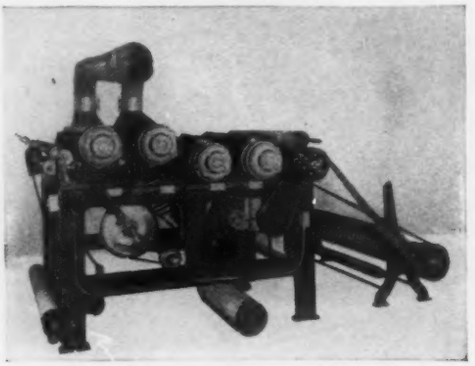
Modernize with new up-to-the-minute PROCTOR DRYERS and you'll get better drying, faster drying, and lower drying costs. . . .

Many wide-awake concerns are now getting handsome returns on their investments in modern PROCTOR DRYERS.

The illustrations here show only a few of the many types of dryers built by Proctor & Schwartz for the textile industry

PROCTOR & SCHWARTZ · INC · PHILADELPHIA

MORE PRODUCTION
BEST RESULTS



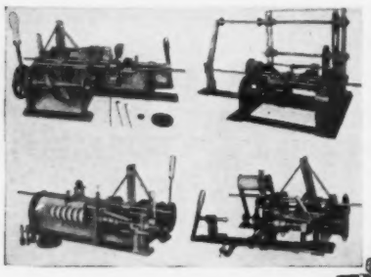
CURTIS & MARBLE
AUTOMATIC SHEAR

For removing selvage and surface threads from cottons, silks, rayons, and mixed goods.

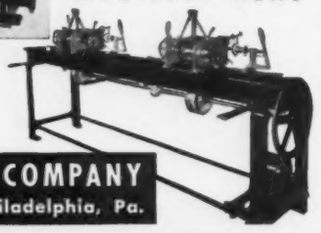
Built-in Motors for cutters insure steadier running, greater capacity, and increased efficiency.

See it at the Greenville Show, Space No. 238-239

CURTIS & MARBLE MACHINE CO.
WORCESTER, MASS.



SPOOLING MACHINES
SINGLE END
DOUBLE END
CAM TRAVERSE
SCREW TRAVERSE
MULTIPLE HEAD



We manufacture twenty styles of spooling machines for as many material combinations.

FIDELITY MACHINE COMPANY
3909-19 Frankford Ave., Philadelphia, Pa.

BAHNSON CO., WINSTON-SALEM, N.C.

FREE FOR THE ASKING

READERS interested in literature reviewed on this page may secure copies by writing to TEXTILE WORLD, 330 West 42d St., New York, giving their company connection.

Power Equipment. Westinghouse Electric & Mfg. Co. Bulletin B-2175 describes and pictures Type M turbine in 100 to 2,000 hp. range; includes installation photographs. Data Sheet 3610 describes company's gearmotors in several types; reduction ranges from 5:1 to 200:1, horsepower from ¾ to 75, and output speeds from 4.4 to 1,550 r.p.m. Data Sheet 3620 describes Types SH and DH speed reducers for use with electric motors or gas, oil, or diesel engines.

Knitting Machinery. Wildman Mfg. Co. Folder describes briefly and pictures company's rayon body machines; included is a sample of fabric knitted on this equipment.

Lubrication. Standard Oil Co. February, 1939, issue of *Esso Oilways* contains articles on sewing machines, lubricating of cotton and woolen machinery, and new wetting agent.

Lighting Equipment. General Electric Vapor Lamp Co. Bulletin 522 discusses and pictures industrial applications of company's Cooper Hewitt fluorescent lamps; included are photographs of several textile-mill applications, and specification information.

Air Conditioning. Parks-Cramer Co. February, 1939 issue of *Parks' Parables* discusses air conditioning as it relates to cotton opening, picking, carding, and roving processes; included are several photographs, some of which show defects resulting from machine operation in dry atmospheres.

Sewing Equipment. Union Special Machine Co. February, 1939, issue of *The Needle's Eye* contains articles on use of sewing machines in overall and underwear manufacturing plants; included is a list of new sewing machines developed during 1938, together with a brief description of each.

Fans and Motors. Diehl Mfg. Co. Catalog No. 50 pictures and describes company's line of fans in desk, bracket, circulating, ceiling, ventilating, and exhaust types. Catalog No. 39 contains prices and engineering data regarding company's electric motors, generators, and ventilating equipment. Bulletin 1932 illustrates and describes company's new line of grinders.

Sizing Equipment. Charles B. Johnson. January, 1939, issue of *Rayon Warp Sizing Specialist* contains article on uses of starches in sizing spun rayons; February issue discusses depreciation of sizing equipment.

Neoprene. January, 1939 issue of *The Neoprene Notebook* contains articles discussing various features of Neoprene, and index to all articles which have appeared in the publication's last ten issues.

Thermometers. C. J. Tagliabue Mfg. Co. Catalog No. 1170 contains data on engineering features of, and illustrates, company's dial-indicating thermometers.

Industrial Lighting. Science Laboratories, Inc. Company's mercury combination lighting equipment for inspection rooms, dyehouses, etc. is described and illustrated in a four-page bulletin; a similar booklet contains like information regarding commercial lighting equipment.

Washroom Maintenance. Scott Paper Co. 12-page booklet lists important washroom features such as mirrors, drinking facilities, floors, soap, toilets, waste receptacles, ventilation, etc., and tells how they can be made to speed up washroom traffic, increase satisfaction among personnel, lessen maintenance and service costs, and improve general appearance and sanitation of washrooms.

Boilers. Edge Moor Iron Works. Bulletin 105 describes company's low-head, water-tube boilers ranging from 100 to 600 hp. and from 125 to 900 lb. pressure; engineering and specification data is included.

Bearings. Johnson Bronze Co. 1939 catalog, in 72 pages, contains information on and illustrations of sleeve-type bearings, cored and solid bars, and other products of this company.

Electrical Equipment. Allis-Chalmers Mfg. Co. Illus-

SKF

BALL AND ROLLER BEARINGS

BUILT BY
C. G. SARGENT'S SONS CORP.

SKF CHECK WEAR on Multiplex Burr Pickers

Wherever there's a shaft on this Multiplex Burr Picker, there's an SKF to protect it from the constant WEAR that threatens service life.

Thanks to Sargent engineering, every bearing is located wherever there's a possibility of WEAR on rotating parts. Thanks to SKF engineering, every bearing is self-aligning to compensate for shaft weave without sticking. It has reliability. It has the ability to maintain the proper position of shafts without the slightest trouble.

With a combination of advantages like that, it is only natural this machine burrs and cleans cotton or wool up to 5" long at minimum maintenance costs. You, too, can resist WEAR on your machines by having SKF handle your bearing problems.

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SKF INDUSTRIES, INC., FRONT ST. & ERIE AVE., PHILA., PA.

WHITMAN Yarns

MONOMAC SPINNING CO.
LAWRENCE, MASS.

ARLINGTON MILLS
LAWRENCE, MASS

NONQUITT MILLS
NEW BEDFORD, MASS.

INGRAM SPINNING CO.
NASHVILLE, TENN.

CRAMERTON MILLS
CRAMERTON, N. C.

TALLAPOOSA MILLS
TALLAPOOSA, GA.

WILLIAM WHITMAN COMPANY, INC.
NEW YORK BOSTON PHILADELPHIA CHARLOTTE

Won't You Drop In?

IF you plan to visit the 13th Southern Textile Exposition in Greenville during the week of April 3rd, won't you drop in to the Textile World Booth (Nos. 223-224) to renew acquaintances or get acquainted with the editors?

TEXTILE WORLD

FREE FOR THE ASKING

(Continued from page 114)

READERS interested in literature reviewed on this page may secure copies by writing to TEXTILE WORLD, 330 West 42d St., New York, giving their company connection.

trated mailing piece pictures company's transformers and voltage regulators, and describes some of their outstanding features.

Overhead Conveyors. Link-Belt Co. Bulletin 1630 contains 20 pages describing company's overhead trolley conveyors. Included are many installation photographs in a variety of industries, including hosiery and woolen mills.

Steam Traps. Armstrong Machine Works. Vol. 8, No. 1 of *Armstrong Trap Magazine* contains article describing installation of Armstrong humidifiers and steam traps at Weldrest Hosiery, Ltd.

Braiding and Knitting Equipment. Fidelity Machine Co. Fifty-two page illustrated booklet containing information on manufacture of transfer-top hosiery; illustrations include rib knitting principles, yarn changers, selvage welt, loose course, and methods of laying-in Lastex. Also leaflet and catalog showing a variety of braided products and machinery for making them.

Timers. Automatic Temperature Control Co., Inc., Bulletin T-20, Section F, illustrates and describes Series 2800 Vernier-set timers; featured are quick and accurate setting, rugged construction, and low price.

Storage Cabinets. Lyon Metal Products, Inc. Illustrated folder No. 421 describes company's line of steel storage and wardrobe cabinets; Bulletin 423 describes janitor's cabinets and a storage cabinet, a feature of which is that it is the same height as most 5-drawer file units.

Elevators. Revolvator Co. Bulletin 95F pictures and describes company's elevators, lifters, stackers, piling and tiering machines; included are brief descriptions of the operation of the various units, data on capacities, etc.

Condenser-Tube Maintenance. Condenser Service & Engineering Co., Inc. 4-page bulletin describes company's air and erosion eliminator for the prevention of deterioration of condenser tubes; included are a description of the equipment and how it works, together with brief mention of several installations.

Hoists. McCollum Hoist & Mfg. Co. Folder pictures and describes company's electric trolley-type hoists; included are data on capacities, operating speeds, prices, etc. Another booklet describes company's chain hoists; includes operating data, prices, and weights.

Welding Equipment. Hewitt Rubber Corp. Two-color pictorial folder describes Twinweld, company's product in which two lines of welding hose are molded into a single unit.

Bearings. Bound Brook Oil-Less Bearing Co. Leaflet describes company's impregnated hardwood bearings, included is a short article outlining the origin of oilless bearings, and engineering data on materials used, loads permissible, installations, dimensions, etc.

Lathes. South Bend Lathe Works. Catalog No. 46-B announces the company's 9-in. workshop lathe; eight types are shown in catalog, each available in various bed lengths and with a variety of attachments for all kinds of machining operations.

Metals. Joseph T. Ryerson & Son, Inc. Two bulletins, one describing Ry alloy steel; the other describing company's Glyco Babbitt metal.

Boiler Control. McDonnell & Miller. Catalog describing company's complete line of equipment for boiler water-level control; included are diagrammatic, photographic, and statistical data.

Visible Record Equipment. Acme Card System Co. Bulletin describes company's method for keeping single-line records, listings, and indexes; included are illustrations of a number of installations of this equipment.

TEXTILE WORLD'S

GUIDE TO EXHIBITS

AT THE

SOUTHERN TEXTILE EXPOSITION

Textile Hall Greenville, S. C.

April 3 to 8, 1939

Textile World's Guide to
SOUTHERN TEXTILE SHOW

ON THIS and the following pages are given detailed descriptions of the booths at the Thirteenth Southern Textile Exposition, Textile Hall, Greenville, S. C., April 3 to 8. Booth numbers, a list of products to be displayed, and representatives are included in the report of each individual exhibit which has been announced to date.

TEXTILE WORLD will maintain headquarters in booth 223-4 at the Southern Textile Exposition, Greenville, S. C., April 3 to 8. Cordial invitation is extended to visitors to make this booth their business headquarters while in Greenville. Representatives of TEXTILE WORLD'S editorial and business staffs will be in attendance. Visitor's mail, sent to our Greenville office, 312 Woodside Building, or to our booth, may be picked up at the booth.

Abbott Machine Co., Wilton, N. H. Stage. Improved 90-spindle automatic winder winding cones for magazine warping creels. Rep.: L. S. Ligon, S. A. Roane, F. L. Hendricks, J. Ring, E. J. Abbott.

Adolff Bobbin Co., Inc., Kearny, N. J. Booth 479. Complete line of bobbins, spools, quills, etc., in fiber and wood; also paper tubes and cones for all purposes; perforated dye tubes; aluminum bobbins and spools for the rayon industry. Rep.: W. E. Mayer, C. F. Egues, J. Alfred Lechler, John Klinck.

Aldrich Machine Works, Greenwood, S. C. Booth 250. Lummus Gyrator; completely rebuilt single-process picker equipped with Aldrich synchronizer arranged to receive cotton from Gyrator without hopper feeder; also samples of various smaller parts. Rep.: A. P. Aldrich, Robert Aldrich, Roy Perry.

Allentown Bobbin Works, Allentown, Pa. Booth 316-A. Bobbins, and spools for silk, rayon, and cotton. Rep.: Henry W. Mack.

Allis-Chalmers Mfg. Co., Milwaukee, Wis. Booths 484–485, Annex No. 2. Latest applications of variable-speed Texrope V-belt drives; motors and control equipment; improved centrifugal pumps for process work, humidifier service, and general applications. Rep.: William Parker, and sales and factory representatives.

Louis Allis Co., Milwaukee, Wis. Booth 225. See Greenville Textile Supply Co.

Aluminum Co. of America, Pittsburgh, Pa. Booths 349–351. Aluminum and magnesium parts adaptable to the textile industry: knitting-machine sectional warp beams, Milanese bobbins, extruded needle bars, warp-beam shafts; carpet-loom tube frames; loom pickers, rope drums, and heddle frames; twisting machine ring rails, traverse bars take-up rolls. Rep.: R. C. Bradbury, C. Braglio, H. Menking, S. K. Bushnell, J. H. Irwin, H. J. Fahrney.

American Brass Co., Waterbury, Conn. Booth 450-2. Anaconda 85-in. Red-Brass pipe, copper tubes with both solder and flared-tube fittings cutaway of a welded Everdur copper-silicon alloy storage tank shell, electrical metallic tubing and rigid conduit for use under corrosive conditions, copper and copper alloy welding rods with typical repair welds made on cast-iron parts with Tobin bronze, special textile machinery parts made of Ambrac and Phosphor bronze, copper venting hood, copper shields for protecting wood construction members against termites, brass rolls, conventional and duplex types of print rolls, cross-section of a cold-drawn seamless copper dry can. Rep.: H. F. Braman, E. T. Lang, H. M. Peck, H. W. Kamack, G. E. Wuestefeld, R. S. Burr, W. Harold Dowd.

American Cyanamid & Chemical Corp., New York. Booths 453–454. Chemical specialties for the textile trade. Rep.: Hugh Puckett, E. J. Adams, C. B. Suttle, Jr., J. B. Button, W. H. Earle, Jr., J. D. Hunter, E. H. Driver, H. W Rose, M. J. Wixson.

American Lumber & Treating Co., Chicago. Booth 437. Wolmanized lumber. Rep.: R. B. Putnam, G. Dewart.

American Magnesium Corp., Cleveland, Ohio. See Aluminum Co. of America.

American Moistening Co., Providence, R. I. Booth 101. Humidifying apparatus. Rep.: Marvin McCall, Joseph E. Boston, W. L. Johnson, J. D. Johnson, F. J. Orme.

American MonoRail Co., Cleveland, Ohio. Booth 112. Automatic cleaning equipment, American MonoTractor and Hoist unit, monorail crane and chain hoist, monorail track and switch, new monitor cleaner. Rep.: J. P. Lawrence, Curran S. Easley, Lewis H. Fallis, Edward H. Doerger.

American Mutual Liability Ins. Co., Boston. Booths 344–345. Featuring various phases of the company's accident-prevention service. Rep.: William Blanton, Corson Rose, Leslie Heston, A. P. McIntosh, E. L. Dorsey.

American Rolling Mill Co., Middletown, Ohio. Booth 102. Stainless steel dry cans, dyeing machines, wet goods truck, slasher cylinder. Rep.: John H. Faunce, Jr., R. C. Cunningham, C. M. Broome, Jr., W. F. Elliott, J. B. Butterfield.

American Safety Table Co., Inc., Reading, Pa. Booth 227-8. Electric drives; looping, seaming, and safety tables; individual stands; shirt collar-and cuff-pressing machines. Rep.: Max T. Voigt, Henry Frankel, E. W. Hollister.

American Steel & Wire Co., Cleveland, O. See United States Steel Corp.

American Textile Engineering, Inc., Kearny, N. J. See Hygrolit, Inc. and Canusa Corp.

American Wool & Cotton Reporter, Boston. Booth 208. Textile publishers.

Aqua-Sec Corp., New York. Booths 320-1. Water-repellent compound, mothproofing, resin finishes for spun rayon and for cotton. Rep.: D. M. Martin, T. T. Wilheit, H. H. Heidt.

Armstrong Cork Products Co., Textile Division, Lancaster, Pa. Booth 140. Seamless cork cots and Accotex cots for spinning- and roving-frame rolls, equipment for assembling and buffing these cots, loom take-up-roll covering, temple rolls, clutch disks, brake lining. Rep.: J. V. Ashley, T. L. Hill, H. H. Jordan, W. T. Coker, F. G Richards, D. P. Paiste, D. N. Herr.

Amstrong Machine Works, Three Rivers, Mich. Booth 427. Glass model steam trap. Rep.: Allan T. Shepherd, O. E. Ulrich.

Arnold, Hoffman & Co., Providence, R. I. Booth 464. Textile sizes and other chemicals. Rep.: Edwin H. Arnold, Thomas H. Roberts, Joseph A. Bryant, Frank W. Johnson, Harold T. Buck, Robert E. Buck, W. Chester Cobb.

Ashworth Bros., Inc., Fall River, Mass. Booth 120-1. Improved metallic feed roll for cotton cards, specially designed lickerin wire, Platt's patented metallic wire for cotton cards, card setting machines in operation. Rep.: Robert C. Ashworth, Jr., Edwin H. Isenhour, John M. Reed, Clarence B. Thomason, A. Eugene Johnston, Ralph B. Wilson, Edward R. Simmons.

Atkinson, Haserick & Co., Boston. Booth 131-A. Hacoba automatic filling and braider-bobbin winders, Obermaier single-package dyeing machine and stainless steel dye beam. Rep.: Gibbons G. Slaughter, J. Fred Slaughter, Harold V. Farnsworth, William P. Homans.

Atlanta Brush Co., Atlanta, Ga. Booths 409–410 Annex. Industrial, textile and miscellaneous brushes; textile brush repairs. Rep.: George B. Snow, William C. Perkins, T. C. Perkins, Howard R. Cook.

Atwood Machine Co., Stonington, Conn. Booth 133. Silk and rayon winders, double twisters, and up twisters, including the new UniRail twister. Rep.: T. Dewhurst, F. Sails, H. J. Morton A. L. Lewis.

Bahan Textile Machinery Co., Greenville, S. C. Booths 137, 138, 139. Repair and replacement parts for various types of textile machinery. Rep.: Wm. H. Bahan, J. C. Williamson, N. M. Neal, Paul J. Bahan, W. R. Rothrock W. J. Maudling, C. L. Green, T. H. Boyd, E. F. Bahan.

Bahnson Co., Winston-Salem, N. C. Booths 214–216. Humidifying and air-conditioning equipment. Rep.: S. C. Stimson, D. P. Stimson, I. L. Brown, R. B. Crosland, Agnew Bahnson, Jr.

Barber-Colman Co., Rockford. Ill. Booths 247–249. New warp drawing-in machine for flat steel heddles; automatic spooler; super-speed warper; portable warp tying-in machines for cotton, silk, and rayon; also milling cutters and gear hobs; electrically operated controls and air-distribution outlets for all types of heating, ventilating, and air-conditioning systems. Rep.: J. H. Spencer, N. H. Alford, S. R. McElroy, F. D. Taylor, Jas. Savage, W. P. Turner, B. A. Peterson, R. E. McCausland, R. G. Ross, L. M. Howell.

Bassick Co., Bridgeport, Conn. Booth 462. Truck casters for light, medium, and heavy-duty requirements. Rep.: A. J. Israel, E. P. Ripley.

Beaver Pipe Tools, Inc., Warren, Ohio. Booth 108. Pipe tools including new Model C machine which converts hand tools into a portable pipe-and-bolt machine. Rep.: J. T. Gougler, Harris Carlock.

Bemis Bro. Bag Co., Brooklyn, N. Y. Booth 352. Tite-fit tubing for baling, also all kinds of textile bags. Rep.: E. T. Fuller, R. R. Radford, J. Linnington.

Benjamin Electric Mfg. Co., Des Plaines, Ill. Booth 113. Dayliter fluorescent lamp diffuser, Flur-O-Line fluorescent lamp units for multiple lamp assemblies, Equalux reflector for loom illumination, RLM silvered-bowel diffuser for general illumination, Stock-Bin-Lite reflector for illumination of stock-room aisles. Rep.: H. P. Steele, J. N. Asher, I. H. Stockel.

Birch Bros., Inc., Somerville. Mass. Booth 217. Heavy-duty ball-bearing scutcher, Coronation sewing machine, Supreme gray-room butt-seam sewing machine with Merrow head, bristle stretcher for stretching fabrics. Rep.: John C. Cosby, Harold W. Birch.

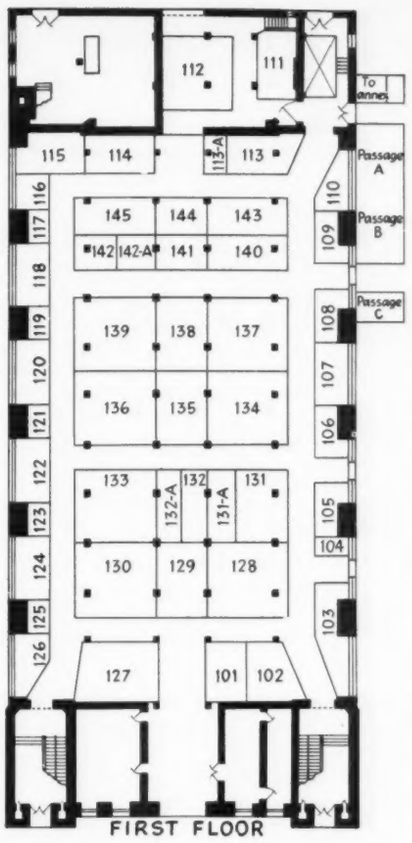
S. Blickman, Inc., Weehawken, N. J. Booth 318–9. Welded stainless-steel drying cylinder; small working model of a dye box; 50-in. dye jig with stainless-steel tub, stainless-steel immersion rolls, and stainless batch-up rolls. Rep.: Bernard Blickman.

Charles Bond Co., Philadelphia. Booth 448. Check straps, harness straps, lug straps, loom pickers, binder straps, flat leather belting, solid round leather belting textile roller skins; also flexible steel couplings, truck casters, tranmission machinery, gears, speed reducers, etc. Rep.: C. Carter Bond, Harold C. Smith, Harold C. Smith, II, John C. Turner.

Bowen-Hunter Bobbin Co., East Corinth, Vt. See Greenville Textile Supply Co.

Bristol Co., Waterbury, Conn. Booths 431–432. Time-temperature recorder controller, new Pyrometer resistance thermometer, moisture-content controller, humidity controller with hygroscopic element, recording liquid-level gage temperature-humidity recorder in self-contained case. Rep: H. E. Beane, H. A. Van Hala, J. N. Swarr, F. W. Borchers, D. C. Sanford, J. L. Williams, C. Webber.

Brown Instrument Co., Philadelphia. Booths 420–422. Moist-O-Graph recording controller for slashers, recording pressure controller for slasher cylinders, recording thermometer controllers, direct-reading hygrometer, electric flow-meters, recording wet-and-dry-bulb hygrometer, electric tachometer. Rep.: E. B. Evleth, L. Morton Morley, A. E. Krogh, A. H. Koch, R. A. Weikel, W. D. Douglas, Jr., B. Cullen.



Bunting Brass & Bronze Co., Toledo, Ohio. Booth 356. Bronze bearings and bars, Babbitt metals, oilless bronze bearings. Rep.: G. H. Adams, E. J. Butler, W. C. Bracken, V. Snyder.

H. W. Butterworth & Sons Co., Philadelphia. Booths 123–124. Laboratory model micro-set dye padder, 120-package stainless-steel yarn dyeing machine. Rep.: Harry W. Butterworth, J. Ebert Butterworth, J. Hill Zahn.

Canusa Corp., Arlington, N. J. Booths 480–481. New electro-induction static card-stripping device, electro-psychrometer. Rep.: C. F. Dulken, H. E. Kresse, George Westwater, J. Alfred Lechler, John Klinck, Belton C. Plowden.

Carnegie-Illinois Steel Corp., Pittsburgh, Pa. See United States Steel Corp.

Carolina Specialty Co., Charlotte, N. C. Booth 132. 40-in. open-top extractor, 17-in. Monex extractor, 36-in. Foldrite towel folding machine, Rochester super-rotary hosiery dyeing machine, Hermans AE-type shearing and brushing machine; also photographs of finishing and drying equipment manufactured by James Hunter Machine Co. Rep.: R. C. Caine, C. S. Slingerland, Lee Sherman Cass, H. B. Curtis, W. S. Anderson.

Carolina Supply Co., Greenville, S. C. Booth 119. American tension-control base, Wedgebelt adjustable-pitch-diameter V-belt sheave, Circle-A leather belt.

Chapman Valve Mfg. Co., Indian Orchard, Mass. Booth 463. Valves for the textile industry. Rep.: Frank A. Hunter, W. D. Taulman.

Chisholm-Moore Hoist Corp., Tonawanda, N. Y. Booth 251-B. Hand-powered hoists and trolleys, electric hoists, ratchet hoists, new "Plug-In" electric hoist. Rep.: Jesse A. Brewer, E. J. Byrne.

Clinton Co., Clinton, Iowa. Booths 205–206. Starches for the textile industry. Rep.: George E. Corson, Luther Knowles, Dana H. Alexander, Boyce L. Estes, George B. Moore.

Cocker Machine & Foundry Co., Gastonia, N. C. Booth 317-A. Warpers.

Coffing Hoist Co., Danville, Ill. Booth 334. Safety-pull ratchet-lever hoists, new Power Master spur-gear self-lowering hoists, new Model C spur-gear hoists, new Quik-Lift electric hoists, differential hoists, trolleys, load binders. Rep.: J. R. Coffing, F. L. Dwiggins.

Continental-Diamond Fibre Co., Newark, Del. Booth 106. Diamond vulcanized fibre hollow ware and specialties; Dilecto hollow ware and specialties; Haveg tanks, fittings, and specialties. Rep.: C. L. Simmons, Andrew A. Fischer, F. W. Vandiver, F. L. Cooper, C. R. Runk, N. N. Wright.

Corn Products Sales Co., Greenville, S. C. Booth 457. Permanent Annex. Starches and sizes. Rep.: J. C. Alexander, C. C. Stover, W. R. Joyner, L. H. Kelley, J. A. Simpson, T. A. Mott, Curry Watson, A. A. Harden, H. A. Wilmerding, Jr., A. N. McFarlane.

Cotton, Atlanta, Ga. Booth 408. Textile publishers.

Dana S. Courtney Co., Chicopee, Mass. See Greenville Textile Supply Co.

Crane Co., Chicago. Booth 449. General line of valves and fittings. Rep.: P. F. Sackett, R. G. Watkins, O. A. Seaborg, R. H. Brown, J. A Marshall, W. H. Pape, Ward Converse, W. F. Lahl.

Crocker-Wheeler Electric Mfg. Co., Ampere, N. J. Booth 317. Poly speed motor, loom motor, flexible coupling, textile switch. Rep.: L. S. Howland, J. S. Freeman, C. N. Johnson.

Crompton & Knowles Loom Works, Worcester, Mass. Booths 134–136. Display includes S5, 52-in., 20-harness dobby, 2x1 box, high-speed rayon loom; C4, 92-in., 2- and 4-harness undercam, 4x1 box, blanket loom, and other equipment. Rep.: F. W. Howe, Jr., R. N. Deal, J. C. Irvin, S. P. V. Desmond, and representatives from main office

Crouse-Hinds Co., Syracuse, N. Y. Booth 471. Flood lights, plugs, and receptacles; switch boxes; junction boxes; condulets; lighting units.

Curtis & Marble Machine Co., Worcester, Mass. Booths 238–239. Featuring new motor-driven inspecting machine for handling large-diameter rolls of cloth, latest type high-speed shear with built-in motors for each cutter and automatic seam protector, for cotton, rayon, and mixed goods; also working model of a Truslow blender. Rep.: Walter F. Woodward, Fred C. Bryant, Ralph L. Marble, Frank MacKay.

Cutler-Hammer, Inc., Milwaukee, Wis. Booth 145. Latest developments in electric motor control for the textile industry, with typical units in operation to demonstrate their various operating and protective features. Rep.: B. M. Horter, E. G. Peterson, L. P. Niessen, P. S. Jones, A. C. Gibson, W. E. Addicks

Daily News Record, New York. Booth 327–8. Textile publishers.

Dayton Rubber Mfg. Co., Dayton, Ohio. Booth 111. Blue Label pickers, lug straps, holdups, bumpers, dobby cord ends, wiper blades all made from square-woven fabric bonded with special rubber compounds; also new Super-Flex cog-belt made with heat-resisting cord. Rep.: H. M. Bacon, J. D. Cole, J. R. Kindig.

Denman Tire & Rubber Co., Warren, Ohio. See Terrell Machine Co.

Detroit Graphite Co., Detroit, Mich. Booth 221. Paints for the textile industry. Rep.: E. C. Roberts, A. B. Edge, J. E. Jones, Harold Mahon.

Diagraph-Bradley Stencil Machine Corp., St. Louis, Mo. Booth 330. Shipping room supplies including stencil machines, board, brushes, ink. Rep.: J. G. Burton, H. C. Zaban, G. E. Daub.

Diehl Mfg. Co., New York. Booths 232–233. Complete line of textile motors, general-purpose motors, motors for special applications, textile creel fans, ventilating equipment. Rep.: Daniel Woodhead, P. N. Thorpe, H. B. Thorpe, W. J. Jockers, S. G. Boyd, A. R. Booth.

Dodge Mfg. Corp., Mishawaka, Ind. Booth 144. Loom devices in operation, hanger bearings and pillow blocks, new Diamond "D" clutch for textile machinery, internal expanding ring clutch, V-belt drives, capularly oiling loom bearings, steel and cast-iron pulleys. Rep.: W. W. French, F. T. O'Hara, Clem Sollenberger, Lee Stoner, G. H. Woolley, Jr.

Draper Corp., Hopedale, Mass. Booth 124. New, high-speed, 44-in. XD model looms weaving rayon and No. 10 duck; 44-in. XK model dobby loom for rayon; 40-in. X model loom weaving print cloth; 90-in. XL model loom for wide sheetings; also new shuttles with vibration dampener, and two new shuttle eyes; bobbins, spindles, rings, temples, spooler guides. Rep.: B. H. Bristow Draper, Thomas H. West, Edwin N. Darrin, Clare H. Draper, Jr., R. S. Brice, W. K. Child, Thomas Henderson, L. C. Lockman, R. W. Poole, C. L. Williams, W. M. Mitchell, W. P. Ellis, J. H. O'Neil, S. A. Stone, C. H. Turner, C. H. Warren.

E. I. du Pont de Nemours & Co., Finishes Division, Wilmington, Del. Booth 461. Paint products for the textile industry, including new mill white, floor finishing system, and glare-reducing window finishes. Rep.: S. W. Quisenberry, E. M. Hill, L. R. Collins, O. J. Williams.

E. I. du Pont de Nemours & Co., Rayon Division, New York. Booth 445. Rayon yarns and fabrics. Rep.: F. H. Coker, E. C. Harrington.

Durant Mfg. Co., Milwaukee, Wis. See Terrell Machine Co.

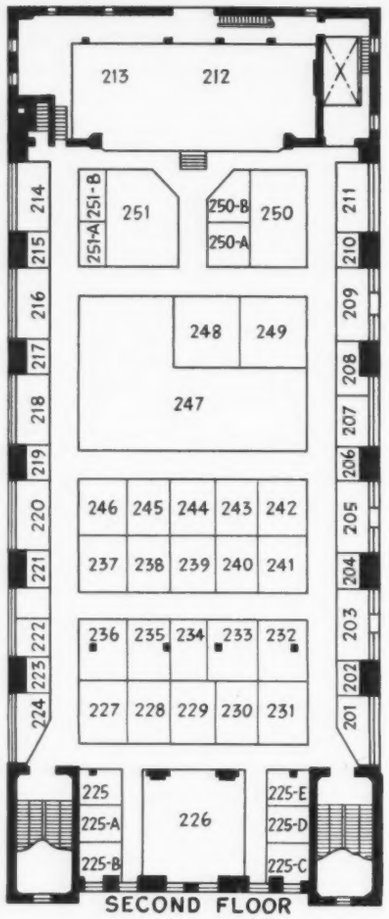
Duro Metal Products Co., Chicago. Booth 225-D. Tools, wrenches, screwdrivers, electric drills. Rep.: W. R. Hosford, L. M. Hirsig.

Economy Baler Co., Ann Arbor, Mich. See Terrell Machine Co.

Elk Horn Coal Corp., Cincinnati, Ohio. Booth 110-B. Wayland Wasp and Super Hi-Hat industrial coals. Rep.: C. H. Schupp, G. O. Voss, Carl W. Clayton, G. C. Fisher, W. M. Fenley.

Everlastic Mill Supplies, Greenville, S. C. Booth 251. Cutler tapes, Everlastic roll covers. Evercele temple rolls, Everwear temple rolls, Everlastic temple rolls, Everlastic take-up rolls, Plastacele comber detaching rolls. Rep.: D. Byrd Willis, Roger W. Cutler.

Faultless Caster Corp., Evansville, Ind. Booth 357-A. Swivel and rigid truck casters with Rockite composition thread-guard wheel in cadmium-plated, rust-proof finish. Rep.: John H. Davis, Walter T. Sutherland.



Fibre Specialty Mfg. Co., Kennett Square, Pa. Booth 478. Steel-covered dreadnaught truck; hard vulcanized-fibre roving cans with single- and double-turned metal top; hard vulcanized-fibre and steel-klad fibre trucks and mill boxes, special raised-angle platform doff trucks, thread guard textile casters, both plain and roller-bearing. Rep.: R. G. Henderson, Ralph Woods, G. B. Scarlett, R. A. Craig, H. R. Chandler.

Fields Mfg. Co., Mouth of Wilson, Va. See Greenville Textile Supply Co.

Finnell System, Inc., Elkhart, Ind. Booth 110. Mill-type combination electric floor scrubber-rinser-dryer, and smaller compact floor scrubber for congested areas. Rep.: W. S. Finnell, R. M. Bliss, L. E. Arnold, A. P. Sears, J. T. Core, L. Ryan.

Fletcher Works, Inc., Philadelphia. Booth 108-A. New double-deck twister for heavy packages, duplex doubler twister combining and twisting hosiery tram, double-deck winder winding real silk, standard extractor. Rep.: Otto W. Schaum, R. J. Bartholomew, Charles W. Moore, W. A. Kennedy, F. W. Warrington, W. C. Osborne.

Foster Machine Co., Westfield, Mass. Booths 229–231. Model 102 drum-wind machine for cotton and other staple yarns, model 75 precise-wind for silk, linen, and cotton. Winding machines. Rep.: Webb Durham, E. C. Connor, John Salva, Ernest Dodge, T. E. Connor.

Foxboro Co., Inc., Foxboro, Mass. Booths 425–426. Elapsed-time temperature controller 1119-type indicating temperature controller, single-action and dual-action temperature controllers, relative-humidity controller, steam flow meter, slasher control. Rep.: W. W. Barron, E. G. Cullings, R. W. Allen, R. V. Hamilton, A. W. Chase, A. Allen, E. S. Lawson.

Friden Calculating Machine Co., Inc., Charleston, S. C. Booth 325. Supermatic calculators. Rep.: R. M. McGillivray, W. J. Barbour, Jr., Frank Street.

Gates Rubber Co., Denver, Colo. Booths 341–342. Vulco rope drive and pickers. Rep.: H. W. Dickerson, N. V. Nutting, D. J. Broadhurst.

General Electric Co., Schenectady, N. Y. Booths 116–118. Screenless motor, new mercury limit switch, welding equipment, motor-mounted loom switch; also display on power-factor correction, demonstrations from the "House of Magic"; new General Electric filling-straightening control to detect and correct skew shown in Winsor & Jerauld exhibit. Rep.: J. E. N. Hume, E. H. Ginn, E. D. McKellar, R. H. Jackson, E. C. Phillips, J. H. Fowler, F. C. Alexander, W. W. Cronkhite, W. C. Yates, A. P. Mansfield, R. B. Hanna, C. F. Pittman.

General Electric Vapor Lamp Co., Hoboken, N. J. Booth 115. 100-watt Cooper-Hewitt fluorescent lamp and Cooper-Hewitt vapor lamp, side by side; combinations of fluorescent and incandescent light and mercury and incandescent light. Rep.: C. F. Strebig, D. R. Grandy, C. N. Knapp, L. F. Gerisch, F. E. Keener, J. H. Bowers, D. M. Woodside.

L. H. Gilmer Co., Tacony, Philadelphia. Booths 225-A and B. See Greenville Textile Supply Co.

Graton & Knight Co., Worcester, Mass. Booth 122. Research leather belting and belt accessories; leather specialties for textile mills. Rep.: O. D. Landis, D. A. Ahlstrand, Hugh Black, A. M. Walsh, F. W. Tisdell, A. L. Davis.

Greenville Textile Supply Co., Greenville, S. C. Booths 225, 225-A, 225-B, 226. Booths will be occupied by the McLeod Cos. consisting of McLeod Leather & Belting Co., Odell Mill Supply Co., Greenville Textile Supply Co.; representing: Walker Mfg. Co.; Bowen-Hunter Bobbin Co.; L. H. Gilmer Co., belting; Hope Webbing Co.; Louis Allis Co., motors; Dana S. Courtney Co.; Wheeler Reflector Co., lighting fixtures for use with fluorescent lamps; Lestershire Spool & Mfg. Co.; Fields Mfg. Co.; Frank E. Paige & Co. Rep.: W. T. McLeod, C. E. Bailes. W. L. Brigham, R. F. Bost, Karl A. Fisher, E. C. Barnhardt, Jr., D. C. Neece, J. E. Carrigan, D. R. Dickson, M. D. Chase, C. Q. Mason, R. B. Dorman, Hugh Graham. T. M. Bailey, J. W. Williams, Gene Brigham, John Walker, R. T. Osteen, Harry G. Hunter, W. W. Conard, H. Vernet, Jr., George Gardner, J. F. MacDonald. H. A. Barnes, R. H. Witherspoon, H. D. Clinton, Jr., J. C. Fields, C. McClure, Jr.

C. M. Guest & Sons, Anderson, S. C. Booth 357. Literature, drawings, photographs, and part-sections of E. Keeler Co. Type CP steam boiler; also a complete 125-hp. water-tube boiler with water-cooled furnace walls, on railroad siding across from Textile Hall. Rep.: O. W. Kopp, R. S. Pruitt.

Gulf Oil Corp. of Pennsylvania, Pittsburgh, Pa. Booth 211. Gulfgem spindle oil and other lubricants. Rep.: A. O. Buntin and staff of engineers.

Haas-Miller Corp., Philadelphia. Booth 340. Textile oils and chemicals for processing and finishing all fibers, mostly new and original. Rep.: C. J. Haas, H. L. Miller, W. G. Leon, W. Moon, W. Kirk.

Hart Products Corp., New York. Booth 210. Sizing, conditioning, and finishing materials for cotton and rayon. Rep.: Charles C. Clark, Harry B. Iler, Talley W. Piper, Ralph Hart.

Reid Hayden, Inc., Charlotte, N. C. Booth 335. Thermo-O-Tile steam conduit system for installing steam pipes underground, Johns-Manville industrial pipe covering constructions. Rep.: A. F. Pierce, James MacDonald, W. W. Leroy.

Hercules Powder Co., Wilmington, Del. Booth 331-3 and 337-9. Processing chemicals. Rep.: Theodore Marvin, G. B. Bossert, B. H. Little, F. U. Rapp, W. M. Billing, W. T. Bunce, H. M. Thompson.

Hermas Machine Co., Hawthorne, N. J. Booth 132. 48-in. Model AE shear with new seam protector; 58-in. Model GF290 improved inspecting and measuring machine. Rep.: W. S. Anderson, H. B. Curtis, C. J. Slingerland.

Hope Webbing Co., Providence, R. I. See Greenville Textile Supply Co.

E. F. Houghton & Co., Philadelphia. Booth 423. Size check-up test; new wetting out agent Surfax W. O.; Vim Tred leather belt; and improved Okay Tred leather belt; textile leathers; Sta-Put Lubricants. Rep.: C. B. Kinney, W. H. Brinkley, D. C. Miner, C. L. Elgert, T. E. Hansen, S. P. Schwoyer, D. O. Wylie, C. H. Patrick, J. J. Reilly, V. C. Shadden.

Howard Bros. Mfg. Co., Worcester, Mass. Booth 242-3. Tuffer card clothing. Rep.: Harry C. Coley, Guy L. Melchor, Floyd Childs, Carl Moore, Fritz Nuckols.

Huntington & Guerry, Inc., Greenville, S. C. Booth 219. Methods of installation of electrical power and lighting equipment in textile mills. Rep.: DuPont Guerry, Jr., Hubert M. Bay, R. S. Huntington, J. H. Howard, J. R. Rutledge.

Hyatt Bearings Division, General Motors Corp., Newark, N. J. Booth 218. Roller bearings for the textile industry. Rep.: H. K. Porter, W. L. Iliff, H. M. Carroll, J. M. Grady, F. U. Naughton, E. P. O'Neill.

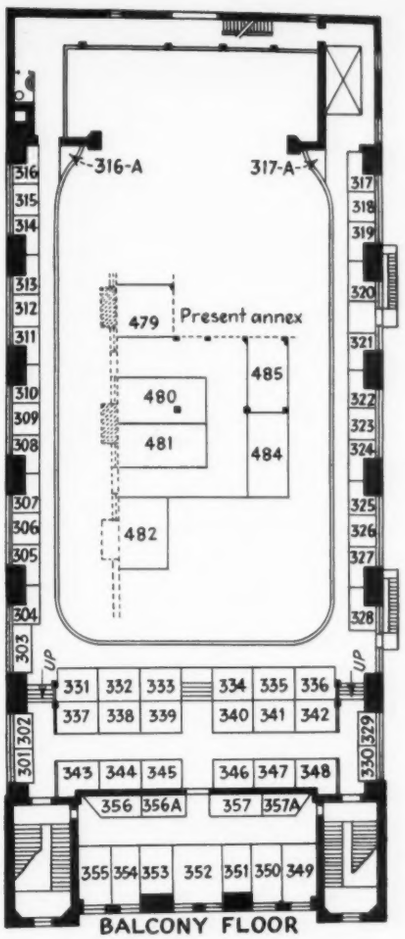
Hygrolit, Inc., Kearny, N. J. Booths 480–481. Machinery and chemicals for setting twist and lubricating textile fibers and piece goods. Rep.: C. F. Dulken, H. E. Kresse, George Westwater, John Klinck, J. Alfred Lechler, Belton C. Plowden.

International Business Machines Corp., New York. Booth 343. Self-regulating time systems, all-electric writing machines. Rep.: R. H. Austin.

International Filter Co., Chicago. Booths 322–324. Water-softening and purification equipment. Rep.: James M. Kahn, Charles H. Starling.

International Nickel Co., Inc., New York. Booths 442–444. Mill and fabricated forms of nickel, Monel, and Inconel; nickel-clad steel and Inconel-clad steel equipment specifically for textile mill and dyehouse use. Rep.: E. A. Turner, C. J. Bianowicz, J. F. Nation, W. C. Ferguson.

E. H. Jacobs Mfg. Co., Danielson, Conn. Booth 406. Lug straps, canvas strappings, box pickers; new leather check straps, loom pickers, oak and hairy lug straps, oak and hairy strapping; lug sticks, picker sticks, binders, reinforced



skewers, dobby sheaves, sweepsticks, jack sticks, clearer boards, parallel blocks. Rep.: S. B. Henderson, D. B. Griffin, L. L. Froneberger, J. E. Pearson, E. J. Bullard, B. T. Clark.

Jenkins Bros., New York. Booths 440–441. Bronze, iron, and steel valves; new line of stainless steel valves. Rep.: E. L. Dean, H. J. Barnsley.

Johns-Manville Corp., New York. Booth 222. Building materials for plant and mill village; insulating, friction, and packing materials. Rep.: R. S. Hammond, J. W. Hamilton, T. B. Stovall, D. R. Kersh, R. T. McManeus, R. T. Neblett, H. C. Drummond.

Johnson Bronze Co., New Castle, Pa. Booths 413–414. Bearings, bushings, bar bronze, babbitt. Rep.: I. M. Valentine, Eugene Scanlon, Wm. Carenbauer.

Johnson Corp., Three Rivers, Mich. Booth 428. Rotary pressure joint, pressure-equalizing boiler feed. Pump. Rep.: R. O. Monroe, Allan T. Shepherd, John A. Dodd, William Harding.

E. Keeler Co., Williamsport, Pa. See C. M. Guest & Sons.

Keever Starch Co., Greenville, S. C. Booth 407. Textile starches. Rep.: Charles J. Kurtz, James F. Kurtz, D. H. Wallace, C. B. Iler, L. J. Castile, F. M. Wallace.

W. A. Kennedy Co., Charlotte, N. C. Booth 109-A. All kinds of WAK pick counters and yardage counters. Clover Leaf Mfg. Co. silk and rayon bobbins, Ralph Shipman cleaners and pin boards, Hungerford & Terry water softeners and filtration plants. Industrial Dryer Corp. automatic twist setter; also representing Fletcher Works. Rep.: W. A. Kennedy, F. W. Warrington, W. W. Knight, W. C. Osborne, H. H. Hungerford, O. W. Schaum, R. J. Bartholomew, C. W. Moore, Messrs. Folder, Caesar, Kittmiller, Millspaugh.

A. C. Lawrence Leather Co., Peabody, Mass. Booth 203. Complete line of leathers for top roll covering. Rep.: Henry H. Hersey, John Gilfillan, F. R. Kitchell, K. S. Kirk.

F. A. Lazenby & Co., Inc., Baltimore, Md. Booth 244. Filling winders and mill accessories. Rep.: Joseph D. Lazenby, F. M. Lazenby, O. R. Payne, William F. Widman, Robert F. Mormann.

E. Leitz, Inc., New York. Booth 308. Thread counters, photometer for glare and color measurements, combination microscope and camera, comparison microscopes, projection microscopes, lanameter for wool grading. Rep.: Charles A. Brinkman, E. Keller.

Lestershire Spool & Mfg. Co., Johnson City, N. Y. See Greenville Textile Supply Co.

Thomas Leyland Machinery Co., Readville, Mass. Booth 460. Rubber-covered and metal type expanders, scroll rolls for scutchers. Rep.: Sidney A. Mathews.

Link-Belt Co., Chicago. Booth 220. Anti-friction bearing units, flexible couplings, various types of chains; operating units of silent chain drives, roller chain drives, P. I. V. gear. Rep.: W. W. Bond, H. D. Mitchell, W. J. Nighbert, W. F. Hardcastle.

Lummus Cotton Gin Co., Columbus, Ga. See Aldrich Machine Works.

Lunkenheimer Co., Cincinnati, Ohio. Booth 430. Bronze, iron, steel, and corrosion-resistant alloy valves for all prevailing pressures and temperatures; boiler mountings, cocks, and lubricating devices. Rep.: E. Prentys Word, E. Leonard Hertenstein, Wm. H. Burkitt.

Macbeth Daylighting Corp., New York, N. Y. Booths 309–310. Several newly designed fluorescent daylight units; BKX83 air-cooled skylight; BX82 color matching and color identification lamp. Rep., Norman Macbeth, Benjamin J. King.

Marchant Calculating Machine Co., Charlotte, N. C. Booth 304-7. Rotary-type, highspeed electric calculators for automatic division and for automatic multiplication, and for both automatic multiplication and division. Rep.: A. T. Davis, E. J. Demarest, J. B. Sheriff, J. A. Martin, C. E. Stoudemire, E. Avery.

Mathieson Alkali Works, Inc., New York. Booths 469–470. Caustic soda, soda ash, bicarbonate of soda, liquid chlorine, ammonia, calcium hypochlorite. Rep.: F. O. Tilson, R. C. Staples, J. W. Ivey, E. M. Murray, Z. N. Holler, G. E. Missbach.

McLeod Cos., Greensboro, N. C. See Greenville Textile Supply Co.

McLeod Leather & Belting Co., Greensboro, N. C. See Greenville Textile Supply Co.

Merco Nordstrom Valve Co., Pittsburgh, Pa. Booth 416. Lubricated plug valves. Rep.: F. G. Swaffield, C. S. Phillips, W. F. McAulay.

Merrow Machine Co., Hartford, Conn. Booth 237. Styles 60ABB, 60D3B, and 60ABBY machines for butt seaming; new Class A machines for overseaming and overedging at recommended speed of 4,500 r.p.m.; gray goods carrier for use in conjunction with 60ABB and

60D3B machines; high-speed plain crochet and shell-stitch machines. Rep.: E. W. Hollister, R. B. Moreland.

Miller Co., Meriden, Conn. Booth 402, Annex No. 1. Fluorescent reflector, Mazda reflector, mercury reflector. Rep.: G. G. Harvey, J. J. Perry, Jr., W. Cason.

Mitchell & Smith, Inc., Detroit, Mich. Booth 142. Cork cots and textile cork products; loom-vibration-absorbing cork; cork board insulating material for roofs, cork temple rolls. Rep.: Guy F. McClure, R. B. West, F. Robins Mitchell, E. G. Krebs, Dial F. Sweeny.

M & M Textile Lever Co., Greenville, S. C. See Greenville Textile Supply Co.

Modine Mfg. Co., Racine, Wis. Booth 336. Textype unit heaters, air conditioning equipment, copper concealed radiation. Rep.: M. J. Druse, J. W. Hinchey.

Monroe Calculating Machine Co., Inc., Orange, N. J. Booths 346–348. Adding-calculators, adding-listing machines, bookkeeping machines, check writers and signers. Rep.: J. C. Fleming.

Morse Chain Co., Ithaca, N. Y. Booth 250-A. Silent and roller chains, clutches, couplings, variable-speed control units. Rep.: Harry Matthews, Lloyd Taylor.

Myles Salt Co., Ltd., New Orleans, La. Booth 113-A. Salt brine percolator, various grades of salt for textile use. Rep.: William A. Levins, Arthur F. Black.

National Carbon Co., Inc., Cleveland, Ohio. Booth 312-3. Non-metallic material for conveying solutions which prevents metallic contamination; new daylight color-matching unit for cotton classification and matching colors; new accelerated testing unit for testing fastness of dyed textiles to light; last two units equipped with newly developed three-phase carbon-arc lamps. Rep.: M. J. Dorcas, H. F. Anderson, L. E. Dequine, C. G. Ollinger.

National Ring Traveler Co., Providence, R. I. Booth 225-E. Spinning and twisting travelers, including Wentworth double duty, Wentworth gravity and gravity express and ellipse spinning travelers, and duplex horns, Wentworth duplex twister travelers, ellipse style twister travelers. Rep.: Philip C. Wentworth, L. Everett Taylor, Otto V. Pratt, Harold B. Askew, William S. Johnstone.

National Tube Co., Pittsburgh, Pa. See U. S. Steel Corp.

New York & New Jersey Lubricant Co., New York. Booth 109. Non-fluid oil for use on all types of textile machines. Rep.: Falls L. Thomason, W. C. Taylor, J. A. Sorrells, J. R. Huss, W. F. Kimball, Joseph H. Bennis.

North American Rayon Corp., New York. Booth 209. Rayon yarn and fabrics. Rep.: B. S. Hart, J. J. Merlein, Richard C. Urban.

Oakite Products, Inc., New York. Booth 329. Slime-controlling composition No. 72, No. 63 penetrant and wetting-out agent, general line of cleaners. Rep.: Eustace Lingle, J. Basch, F. A. Hull, R. L. Wood, F. C. Lipscomb.

Odell Mill Supply Co. See Greenville Textile Supply Co.

Frank E. Paige & Co., Boston. See Greenville Textile Supply Co.

Parks-Cramer Co., Fitchburg, Mass. Booth 139. Automatic air changer in model mill, Turbo traveling cleaner, bunchless automatic cleaner, Park spray high-duty humidifier, Turbo and Turbomatic atomizer, humidifiers, Park spray psychrostat, portable dustless card stripper. Rep.: R. S. Parks, P. A. McKittrick, W. H. Burnham, O. G. Culpepper, H. B. Rogers, W. J. Buck, W. B. Walker, J. F. Porter, J. R. Henderson, Maynard Ford.

Penick & Ford, Ltd., Inc., Cedar Rapids, Iowa. Booths 438–439, annex. Textile corn starches, dextrins, and gums; textile corn syrup and sugars; corn oil. Rep.: D. P. O'Connor, H. A. Horan, P. G. Wear, Guy L. Morrison, J. H. Almand, W. J. Kirby, C. T. Lassiter, Thomas H. Nelson, Ernest C. Kontz.

Permutit Co., New York. Booth 411. Zeo-Karb and other forms of water treatment, automatic zeolite water softeners, filters, chemical feeds, flock formers. Rep.: N. D. Doane, E. Nordell.

Perry-Mann Eectric Co., Columbia, S. C. Booth 314. General Electric water cooling equipment for textile mills. Rep.: R. M. Alexander, J. M. Craig, Charlie Webb.

Plibrico Jointless Firebrick Co., Chicago. Booth 436. Jointless firebrick and air-cooled walls for boilers suspended arches, refractory materials, boiler baffles. Rep.: Oliver L. Bullard, Frank S. Rieder.

H. W. Porter, Inc., Newark, N. J. Booth 335. Underground conduit, insulation, etc.

Powers Regulator Co., Chicago. Booth 435. Temperature regulators; controls for heating, cooling, and air conditioning; wet- and dry-bulb regulator-recorder; recording thermometers, air-operated regulator, rigid and remote bulb thermometers, thermostats, hygrostats, self-operated regulator, steam and water mixer, series mixers, thermostatic water controller, electric timer for process temperature control, thermostatic steam trap. Rep.: E. W. Rietz, F. E. P. Klages, E. R. Foss, J. J. Joyce, W. C. Heckeroth, M A. Daugherty, S. C. Minnich.

Premier-Pabst Sales Co., Chicago. Booth 311. Exhibiting Exsize. Rep.: W. A. Pardue.

Rayon Textile Monthly, New York. Booth 424. Textile publishers.

Reeves Pulley Co., Columbus, Ind. Booths 240–241. Variable-speed transmission, Vari-speed motor pulley, Vari-speed Motodrive, Variable-speed spinning frame drive. Rep.: C. L. Irwin, D. M. McSpadden, James Cook, J. W. Vaughan, Jr., W. C. Erwin.

Reliance Electric & Engineering Co., Cleveland, Ohio. Booth 143. Self-cleaning textile motors, loom motors, all-electric adjustable-speed drive for a-c. circuits. Rep.: K. S. Lord, Paul W. Arnold.

Republic Steel Corp., Cleveland, Ohio. Booths 473–476. Enduro stainless steel products, Toncan iron sheets and pipe, Upson bolts and nuts, Electrunite tubing, stainless-steel and steel boiler tubing. Rep.: C. C. Snyder, J. W. Minor, Gail Irwin, C. B. Pharo, C. W. Ruth.

J. E. Rhoads & Sons, Philadelphia. Booths 245–246. Flat and round belting, belt preserver, textile straps, Rockwood bases. Rep.: J. Edgar Rhoads, Richard H. Rhoads, Samuel L. Allen, C. Robert Mitchell, Louis H. Schwoebel, J. Warren Mitchell, J. Thomas Hoffman, A. Sidney Jay.

Rhode Island Warp Stop Equipment Co., Pawtucket, R. I. Booth 131. Electrical warp stop attachment, other loom attachments. Rep.: E. C. Smith, William D. Whittaker, W. L. Ferguson, Thomas K. Harris, George W. Smith.

Ridge Tool Co., Elyria, Ohio. Booth 472. Ridgid pipe wrenches, improved Stillson wrenches, Ridgid pipe threaders, Ridgid pipe vises, Ridgid pipe cutters, Ridgit tubing cutters, cutting oil. Rep.: J. J. McIntosh, W. L. Parcell.

Rochester Engineering & Centrifugal Division of American Laundry Machinery Co., Cincinnati, Ohio. Booth 132. Rochester Super dyeing machine, Foldrite folding machine, centrifugal extractor. Rep.: H. B. Curtis, W. S. Anderson, R. C. Caine.

B. S. Roy & Son Co., Worcester, Mass. Booth 207. Traverse grinder, roller grinder, cylinder-roll grinders for cotton cards. Rep.: John R. Roy, Herman C. Schwager.

Seydel-Woolley & Co., Atlanta, Ga. Booths 315–316. Sizing, compounds, penetrants, shuttle dressing; also twist-setter conditioning machine. Rep.: Paul Seydel, Vasser Woolley, S. P. Rakestraw, E. A. Scott, W. H. Mills.

Sherwin-Williams Co., Philadelphia. Booth 401. Save-Lite mill whites, metal-protective undercoaters, metal-protective finish coats, Dado enamel. Rep.: R. B. Olney, J. A. Meacham, G. L. Hehl, A. H. Kennedy, E. H. Steger.

Singer Sewing Machine Co., New York. Booths 232–233. Sewing machines and driving equipment especially developed for cotton mills, bleacheries, and allied industries. Rep.: H. C. Morehouse, J. C. Lewis, C. E. Cain, C. S. Womack, J. W. Daley, P. R. Mohney, Samuel MacLerie.

J. E. Sirrine & Co., Greenville, S. C. Booth 225-C. Textile engineers. Rep.: Ralph McPherson.

Snap-On-Tools Corp., Kenosha, Wis. Booth 326. Hand tools for mill fixers and mechanics. Rep.: R. A. Martin, O. E. Stevens, E. L. Martin, Mrs. O. E. Stevens.

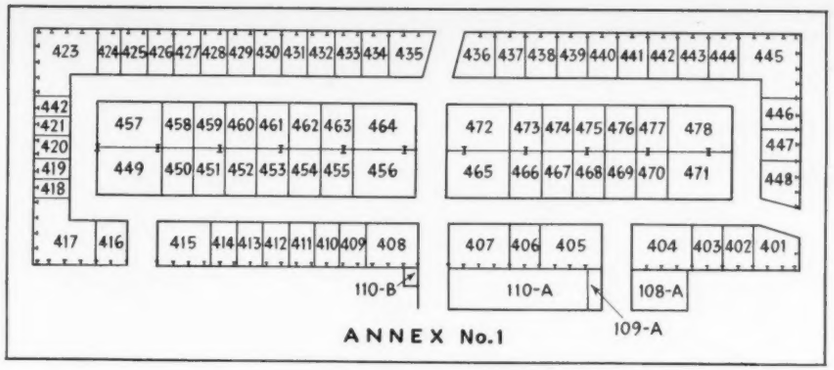
Socony-Vacuum Oil Co., Inc., Baltimore, Md. Booth 354–355. Textile mill lubricating oils, greases, and processing oils. Rep.: C. G. Swank, F. H. Trewin, E. T. Gregorie, Bruce Cotten, B. C. Decker.

Sonoco Products Co., Hartsville, S. C. Booth 103. Paper carriers including cones, tubes, and spools; also cork cots, underclearer rolls, roving cans. Rep.: W. B. Broadbent, W. A. Biggs, H. F. Gaffney, W. M. Carpenter, P. F. Williams, E. S. Reid.

Southern Shuttles, Inc., Greenville, S. C. Booth 127. Tempered dogwood loom shuttles, fiber-clad shuttles, both iron and brass shuttle grips and shuttle eyes for high-speed looms, automatic bobbin-changing tension eye for rayon, silk, cotton or worsted yarn under tension; hand-threading shuttles for plain cotton, rayon, silk, woolen, and worsted weaving, with all types of spindles, eyes, and tensioning devices. Rep.: Louis P. Batson, J. J. Kaufmann, Jr., Jesse Long, Davis L. Batson, Sam R. Zimmerman, Jr., Henry P. Goodwin, H. Raiford Gaffney, B. R. Cole, C. W. Cain, I. G. Moore, O. T. Daniel.

Spaulding Fibre Co., Inc., Rochester, N. H. Booth 356-A. Fibre trucks and receptacles. Rep.: G. F. Anderson, A. L. Wright, E. A. Marshall.

A. E. Staley Mfg. Co., Decatur, Ill. Booth 415. Textile starches and



corn syrups. Rep.: C. H. Davidson, I. F. Wieland, Allan Fuller, W. H. Randolph, Jr., L. A. Dillon, W. T. O'Steen, G. A. Dean, H. A. Mitchell, H. M. Taylor, Jr., J. T. Higginbothem.

L. S. Starrett Co., Athol, Mass. Booth 251-A. Precision tools, straight-edges, dial indicators, hacksaws, and steel tapes. Rep.: Mr. Newell.

Steel & Tubes, Inc., Cleveland, Ohio. See Republic Steel Corp.

Steel Heddle Mfg. Co., Philadelphia. Booth 127. Expansion combs, comb-type leasing reeds, soldered and pitch band reeds; cotton harness; shuttles, harness frames, heddles, drop wires, and harness accesories. Rep.: John J. Kaufmann, Robert J. Frietag, J. J. Kaufmann, Jr., C. W. Cain, Raiford Gaffney.

Stein, Hall & Co., New York. Booths 467–468. Annex. Starches, dextrins, printing and finishing gums; tapioca flour. Rep.: Edwin Stein, Edward Butts, Jr., Ira L. Griffin, W. N. Kline, Jr., T. C. Davis, W. B. Strickland, J. W. Stallings, L. H. Elizer.

Stewart-Warner Corp., Alemite Div., Chicago, Ill. Booth 405. Lubrication devices and lubricants for textile machinery. Rep.: E. I. Pfaff, C. I. Kraus, R. H. Mickey.

B. F. Sturtevant Co., Hyde Park, Boston. Booth 105. Textile-mill type unit heaters, Axiflo pressure fan, Monogram cotton conveying fan, heavy-duty industrial type portable vacuum cleaner. Rep.: W. L. Hunken, H. J. Waggle, K. K. Ayer, J. K. Jernigan, D. W. Davis.

Joseph Sykes Bros. (American) Inc., Charlotte, N. C. Booth 403. Card clothing. Rep.: W. B. Pratt, C. W. Mason, H. Morrow, A. L. Whipple, P. W. Ellis.

W. O. & M. W. Talcott, Inc., Providence, R. I. Booth 412. Fastener for leather belting and special clinching fasteners for rubber, fabric, composition belting. Rep.: M. W. Talcott, G. W. Little, H. J. Allard.

Taylor Instrument Cos., Rochester, N. Y. Booths 446–447. Slasher control system; instrument and control systems for dye jigs, cotton kiers, finishing ranges, dryers; new stainless steel cup thermometer for general dyehouse use. Rep.: Frank S. Ward, H. M. Barker, H. E. Hansen, J. A. Grant, E. J. Hanna.

Temprite Products Corp., Detroit, Mich. Booth 104. Operating display of water-cooling equipment. Rep.: H. B. McLoughlin.

Tennessee Coal, Iron & Railroad Co., Birmingham, Ala. See U. S. Steel Corp.

Terrell Machine Co., Charlotte, N. C. Booths 465–466. New Type L rayon and silk air quill cleaning machine, new bobbin box hoist, Type K bobbin stripper; card room bobbins, spools, cones, other textile wood specialties, new Denman reversible box loom pickers; Denman lug straps, hold-up; Durant Mfg. Co. Productimeter, yardage counter, revolution counter, stroke counter, Economy Baler. Rep.: E. A. Terrell, W. L. McDonald, I. P. Graham, R. B. Smith, W. S. Terrell, J. J. Wilson, A. C. Kimbirl, H. W. Webster.

Textile Age, New York, N. Y. Booth 303. Textile Publishers.

Textile Bulletin, Charlotte, N. C. Booth 204. Textile Publishers.

Textile-Finishing Machinery Co., Providence, R. I. Booth 114. Electric guider and special dryer. Rep.: H. G. Mayer, B. B. Scantland, W. Taylor, A. H. Goff.

Textile Specialty Co., Greensboro, N. C. Booth 477. Truweave reed, Gibbs shuttle truing machine. Rep.: L. Carroll Atkisson, F. A. Decker.

Textile World, New York, N. Y. Booths 223–224. Textile Publishers.

Henry G. Thompson & Son Co., New Haven, Conn. Booth 142-A. New flexible and shatter-proof, high-speed hacksaw blades. Rep.: T. E. Hereford.

Todd Co., Rochester, N. Y. Booths 301–302. A.B.C. payroll systems, Protod-Greenbac checks, checkwriters and check signers. Rep.: H. J. Martin, H. D. Archer.

Toledo Pipe Threading Machine Co., Toledo, Ohio. Booth 482. Hand-operated pipe tools and pipe machines. Rep.: C. A. Wagner, R. W. Warnke, Hugh Tiernan.

Toledo Scale Co., Toledo, Ohio. Booths 458–459. Special scales for the textile industry. Rep.: W. F. MacKinnon, W. M. Randolph.

Tolhurst Centrifugal Division, American Machine & Metals, Inc., New York. Booth 141. New Suprex high-speed extractor. Rep.: Robert Angel.

U. S. Gutta Percha Paint Co., Providence, R. I. Booth 201. Interior and outside Barreled Sunlight products for use in painting in textile mills and villages. Rep.: Alexander S. West, John S. Palmer, Lucien K. Palmer, William M. Moore.

U. S. Ring Traveler Co., Providence, R. I. Booths 433–434 Annex. Bronze and steel ring travelers for spinning and twisting. Rep.: William P. Vaughan, Oliver B. Land, T. L. Maynard, William H. Rose, Amos M. Bowen.

United States Steel Corp., Pittsburgh, Pa. Booths 455–456. Featuring stainless-steel tubing, seamless steel boiler tubing, copper-steel tubing, steel roofing and siding sheets, plain carbon and alloyed tubular material including Shelby seamless mechanical tubing, formed parts manufactured from mechanical tubing, scale-free pipe, Duroline pipe. Cut-away section of a stainless-steel heat exchanger. Participating companies include: American Bridge Co., American Steel & Wire Co., Carnegie-Illinois Steel Corp., Columbia Steel Co., National Tube Co., Scully Steel Products Co., Tennessee Coal, Iron & Railroad Co. Rep.: A. S. Robinson, J. G. Morrison, J. D. Alexander, R. A. Goldschmidt, LeRoy Holt, H. C. Esgar, Charles R. Stegin, W. H. Hester.

U. S. Textile Machine Co., Scranton, Pa. Booth 404 Annex. Heavy-duty, large-package throwing equipment. Rep.: A. W. Thomas, P. J. Thomas, James Marshall.

Universal Winding Co., Providence, R. I. Booths 234–236. No. 44 Roto-Coner equipped for winding paper cones of knitting yarns, wood cones for warping yarns, and all types of packages for dyeing, No. 50 Leesona winder equipped with latest developments for winding silk and rayon. New automatic bobbin winder. Rep.: R. Leeson, E. O. Smith, R. L. Chisholm, T. L. Cotter, C. H. Brown, J. W. Stribling, E. I. Wynne, R. M. Mauldin, W. G. Manchester, B. W. Durling

Veeder-Root, Inc., Hartford, Conn. Booth 107. Improved pick and hank counters, new combination yardage and hank counter; complete line of industrial counting devices; featuring new Cut Meter, operating either on mechanical or electrical stop motion of the loom, which automatically stops loom when predetermined yardage has been woven. Rep.: Graham H. Anthony, John H. Chaplin, A. E. Kallinich, Edwin Howard, John V. Verner, P. W. Coleman.

Victor Ring Traveler Co., Providence, R. I. Booth 250-B. Ring travelers. Rep.: E. R. Jerome, T. L. Richie, N. H. Thomas, B. F. Barnes, Jr., J. McD. McLeod, and Miss R. L. Smith.

Walker Mfg. Co., Philadelphia. See Greenville Textile Supply Co.

Watson-Williams Mfg. Co., Milbury, Mass. Booths 125 and 126. Shuttles, improved shuttle eyes, heddles, new heddle frames, new heddle-frame studs: Rep.: Hubert J. Watson, Malcolm Russell, D. C. Ragan, E. V. Wilson.

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Booths 417–419 Annex. New lint-free spinning frame motor, combination linestarter, new type De-ion watchman loom switch, loom motors, pushbuttons, and a varied assortment of lighting and lamps. Rep.: John Gelzer, J. W. Brooks, E. C. Delano, C. B. Stainback, G. D. Bowne, M. A. Land, J. H. Reeves, Jr., C. L. Speake, A. W. Rose, E. S. Lammers, L. S. Paleton.

Wheeler Reflector Co., Boston. Booth 226. See Greenville Textile Supply Co.

Whitinsville Spinning Ring Co., Whitinsville, Mass. Booth 202. Rings and holders for spinning and twisting. Rep.: W. P. Dutemple, H. R. Brock.

Winsor & Jerauld Mfg. Co., Providence, R. I. Booth 110-A. High-speed tenter frame, electric cloth guiders, new automatic weft straightening device, electric cloth batcher. Rep.: Harry MacKnight, F. Chester Jerauld.

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